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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY REGIONAL HEARING CLERK
REGION 6 EPA REGION VI

IN THE MATTER OF:) ADMINISTRATIVE SETTLEMENT
PATRICK BAYOU SUPERFUND SITE) AGREEMENT AND ORDER ON CONSENT
THE LUBRIZOL CORPORATION,) FOR REMEDIAL INVESTIGATION/
OCCIDENTAL CHEMICAL) FEASIBILITY STUDY
CORPORATION, AND SHELL OIL)
COMPANY, ON BEHALF OF DEER)
PARK REFINING LIMITED) U.S. EPA Region 6
PARTNERSHIP AND SHELL) Docket No. CERCLA 6-07-05
CHEMICAL LP)
RESPONDENTS) Proceeding Under Sections 104, 107
and 122 of the Comprehensive
Environmental Response, Compensation,
and Liability Act as amended
(42 U.S.C. §§ 9604, 9607, 9622).

**ADMINISTRATIVE SETTLEMENT AGREEMENT AND ORDER ON CONSENT
FOR REMEDIAL INVESTIGATION/FEASIBILITY STUDY**

I. JURISDICTION AND GENERAL PROVISIONS

1. This Administrative Settlement Agreement and Order on Consent ("Settlement Agreement") is entered into voluntarily by the United States Environmental Protection Agency ("EPA") and The Lubrizol Corporation, Occidental Chemical Corporation, and Shell Oil Company, on behalf of Deer Park Refining Limited Partnership and Shell Chemical LP ("Respondents"). The Settlement Agreement concerns the preparation and performance of a remedial investigation and feasibility study ("RI/FS") for the Patrick Bayou Superfund site located in Deer Park, Texas ("Site"), and reimbursement for Past and Future Response Costs.

2. This Settlement Agreement is issued under the authority vested in the President of the United States by sections 104, 107 and 122 of the Comprehensive Environmental Response, Compensation, and Liability Act, as amended ("CERCLA"), 42 U.S.C. §§ 9604, 9607, and 9622. This authority vested in the President was delegated to the Administrator of EPA by Executive Order 12580, 52 Fed. Reg. 2923 (Jan. 29, 1987), and further delegated to the Regional Administrators by EPA Delegation No. 14-14-C (May 11, 1994). This authority has been redelegated by the Regional Administrator to the Director, Superfund Division, by EPA Regional Delegation No. R6-14-14-C (June 8, 2001).

3. In accordance with Sections 104(b)(2) and 122(j)(1) of CERCLA, 42 U.S.C. §§ 9604(b)(2) and 9622(j)(1), EPA notified the relevant Federal and/or State natural resource trustees on July 7, 2004, of negotiations with potentially responsible parties regarding the release

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of hazardous substances that may have resulted in injury to the natural resources under Federal and State trusteeship.

4. EPA and Respondents recognize that this Settlement Agreement has been negotiated in good faith and that the actions undertaken by Respondents in accordance with this Settlement Agreement do not constitute an admission of any fact or of any liability. Respondents do not admit, and specifically deny and retain the right to controvert in any subsequent proceedings other than proceedings to implement or enforce this Settlement Agreement, the validity of the findings of fact, conclusions of law and determinations in Sections V and VI of this Settlement Agreement. The Respondents agree to undertake all actions required by the terms and conditions of this Settlement Agreement. Respondents agree to comply with and be bound by the terms of this Settlement Agreement and further agree that they will not contest the basis or validity of this Settlement Agreement or its terms.

II. PARTIES BOUND

5. This Settlement Agreement applies to and is binding upon EPA and upon Respondents and their agents, successors, and assigns. Any change in the ownership or corporate status of a Respondent, including, but not limited to, any transfer of assets or real or personal property, shall not alter such Respondent's responsibilities under this Settlement Agreement.

6. Respondents are jointly and severally liable for carrying out all activities required by this Settlement Agreement. In the event of the insolvency or other failure of any one or more Respondents to implement the requirements of this Settlement Agreement, the remaining Respondents shall complete all such requirements. However, the insolvency or other failure shall not relieve a Respondent from any liability to other Respondents for payments attributable to the defaulting Respondent or for the attorney fees incurred by the other participating Respondents in investigating and seeking to obtain reimbursement from the defaulting Respondent. A party named in paragraph 18 as a recipient of the Special Notice letter shall not be relieved of responsibility or liability by virtue of its failure to participate in the Settlement Agreement.

7. Respondents shall ensure that their contractors, subcontractors, and representatives receive a copy of this Settlement Agreement and comply with this Settlement Agreement. Respondents shall be responsible for any noncompliance with this Settlement Agreement.

8. Each undersigned representative of Respondents certifies that he or she is fully authorized to enter into the terms and conditions of this Settlement Agreement and to execute and legally bind Respondents to this document.

III. STATEMENT OF PURPOSE

9. In entering into this Settlement Agreement, the objectives of EPA and Respondents are: (a) to determine the nature and extent of contamination to the extent necessary to select a remedy and to determine any threat to the public health, welfare, or the environment caused by the release or threatened release of hazardous substances, pollutants or contaminants at or from the Site, by conducting a Remedial Investigation; (b) to identify and evaluate alternatives for remedial action (if any) to prevent, mitigate or otherwise respond to or remedy any release or threatened release of hazardous substances, pollutants, or contaminants at or from the Site, by conducting a Feasibility Study; and (c) to recover Past and Future Response Costs pursuant to this Settlement Agreement which are incurred by EPA with respect to the Site.

10. The Work conducted under this Settlement Agreement is subject to approval by EPA and shall provide all appropriate and necessary information to assess Site conditions and evaluate alternatives to the extent necessary to select a remedy that will be consistent with CERCLA and

the National Oil and Hazardous Substances Pollution Contingency Plan, 40 C.F.R. Part 300 ("NCP"). Respondents shall conduct all Work under this Settlement Agreement in compliance with CERCLA, the NCP, and all applicable EPA guidances, policies, and procedures.

IV. DEFINITIONS

11. Unless otherwise expressly provided herein, terms used in this Settlement Agreement that are defined in CERCLA or in regulations promulgated under CERCLA shall have the meaning assigned to them in CERCLA or in such regulations. Whenever terms listed below are used in this Settlement Agreement or in the appendices attached hereto and incorporated hereunder, the following definitions shall apply:

a. "CERCLA" shall mean the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended, 42 U.S.C. §§ 9601, *et seq.*

b. "Contaminant" and "Pollutant" shall have the same definition as "pollutant or contaminant" as set forth in Section 101(33) of CERCLA, 42 U.S.C. § 9601(33).

c. "Day" shall mean a calendar day. In computing any period of time under this Settlement Agreement, where the last day would fall on a Saturday, Sunday, or federal holiday, the period shall run until the close of business of the next working day.

d. "Effective Date" shall mean the date this Settlement Agreement is signed by the EPA, with the exception of Paragraphs 77 and 79 of Section XVIII, which shall be effective when EPA issues notice to Respondents pursuant to Paragraph 103 that public comments received, if any, do not require EPA to modify or withdraw from Paragraph 77 of Section XVIII of this Order.

e. "EPA" shall mean the United States Environmental Protection Agency and any successor departments or agencies of the United States.

f. "Future Response Costs" shall mean all costs, including, but not limited to direct and indirect costs, that are not inconsistent with the National Contingency Plan and that the United States incurs in reviewing or developing plans, reports and other items pursuant to this Settlement Agreement, verifying the Work, or otherwise implementing, overseeing, or enforcing this Settlement Agreement, including but not limited to, payroll costs, contractor costs, travel costs, laboratory costs, Agency for Toxic Substances and Disease Registry ("ATSDR") costs, the costs incurred pursuant to Paragraph 53 (costs and attorneys fees and any monies paid to secure access, including the amount of just compensation), Paragraph 39 (emergency response), and Paragraph 83 (Work takeover). Future Response Costs shall also include all Interest on those Past Response Costs Respondents have agreed to reimburse under this Settlement Agreement that has accrued pursuant to 42 U.S.C. § 9607(a) during the period from September 30, 2003, to the Effective Date of this Settlement Agreement.

g. "Interest" shall mean interest at the rate specified for interest on investments of the EPA Hazardous Substance Superfund established by 26 U.S.C. § 9507, compounded annually, in accordance with 42 U.S.C. § 9607(a). The applicable rate of interest shall be the rate in effect at the time the interest accrues. The rate of interest is subject to change on October 1 of each year.

h. "Interim Response Costs" shall mean all costs, including direct and indirect costs, paid by the United States in connection with the Site between October 1, 2003, and the Effective Date.

i. "NCP" shall mean the National Oil and Hazardous Substances Pollution Contingency Plan promulgated pursuant to Section 105 of CERCLA, 42 U.S.C. § 9605, codified at 40 C.F.R. Part 300, and any amendments thereto.

j. "Paragraph" shall mean a portion of this Settlement Agreement identified by an Arabic numeral.

k. "Parties" shall mean EPA and Respondents.

l. "Past Response Costs" shall mean all costs, including, but not limited to, direct and indirect costs, that the United States paid at or in connection with the Site through September 30, 2003, plus Interest on all such costs which has accrued pursuant to 42 U.S.C. § 9607(a) through such date.

m. "RCRA" shall mean the Resource Conservation and Recovery Act, also known as the Solid Waste Disposal Act, as amended, 42 U.S.C. §§ 6901, *et seq.*

n. "Respondents" shall mean The Lubrizol Corporation, Occidental Chemical Corporation, and Shell Oil Company, on behalf of Deer Park Refining Limited Partnership and Shell Chemical LP.

o. "Section" shall mean a portion of this Settlement Agreement identified by a Roman numeral.

p. "Settlement Agreement" shall mean this Administrative Settlement Agreement and Order on Consent, the SOW, all appendices attached hereto (listed in Section XXVII), any amendments pursuant to Section XXIX of this Settlement Agreement, and documents incorporated by reference into this document including without limitation submissions by Respondents approved by EPA. EPA-approved submissions (other than progress reports) are incorporated into and become a part of the Settlement Agreement upon approval by EPA. In the event of conflict between this Settlement Agreement and any appendix, this Settlement Agreement shall control.

q. "Site" shall mean the Patrick Bayou Superfund Site located in Harris County, Texas. The Site consists of contaminated sediments within the Bayou, a portion of the East Fork tributary, and associated wetlands as shown in Figure 1. The Site may also include those areas in very close proximity to the contamination which are determined to be needed to implement the response action selected for the Site.

r. "State" shall mean the State of Texas.

s. "Statement of Work" or "SOW" shall mean the Statement of Work for development of a RI/FS for the Site, as set forth in Appendix A to this Settlement Agreement. The Statement of Work is incorporated into this Settlement Agreement and is an enforceable part of this Settlement Agreement as are any modifications made thereto in accordance with this Settlement Agreement.

t. "TCEQ" shall mean the Texas Commission on Environmental Quality (formerly known as the Texas Natural Resource Conservation Commission or TNRCC) and any successor departments or agencies of the State of Texas.

u. "Waste Material" shall mean (1) any "hazardous substance" under Section 101(14) of CERCLA, 42 U.S.C. § 9601(14); and (2) any pollutant or contaminant under Section 101(33) of CERCLA, 42 U.S.C. § 9601(33).

v. "Work" shall mean all activities Respondents are required to perform under this Settlement Agreement, except those required by Section XIV (Retention of Records).

V. FINDINGS OF FACT

12. The Patrick Bayou Superfund Site is located in Deer Park, Texas. The Site consists of contaminated sediments within the bayou, a portion of the East Fork tributary, and associated wetlands. The 3-mile long tidal bayou is a tributary to the Houston Ship Channel and is bounded by and receives discharges from several facilities including those of the City of Deer Park, The Lubrizol Corporation, Occidental Chemical Corporation, Praxair, Inc., Rohm & Haas Company, Shell Chemical Company, and Shell Deer Park Oil Refinery. Outfalls from Praxair and Rohm & Haas discharge into the East Fork tributary which discharges into Patrick Bayou. Patrick Bayou receives and discharges water to/from stream segment 1006, the San Jacinto River Basin, which is classified by the State of Texas as "Water Quality Limited," with intended uses including industrial water supply and navigation.

13. Prior investigations conducted by the city of Houston in 1993 and 1994 along the Houston Ship Channel and its tributaries documented the presence of elevated levels of pesticides, PAHs, cadmium, chromium, mercury, nickel, zinc, and PCBs within Patrick Bayou sediments. Subsequent investigations were conducted in July 1994 during a joint Texas Natural Resource Conservation Commission (TNRCC)/EPA Ambient Toxicity and Water and Sediment Quality Survey. These investigations confirmed the accumulation of the following substances within Patrick Bayou sediments: arsenic, cadmium, chromium, copper, lead, manganese, mercury, nickel, selenium, zinc, hexachlorobenzene (HCB), bis-2-ethylhexyl phthalate, PAHs, PCBs, and pesticides. TNRCC collected sediment samples from the Bayou as part of a Site Inspection in July 2000.

14. Elements and compounds which are hazardous substances as defined in Section 101(14) of CERCLA, 42 U.S.C. § 9601(14), and 40 C.F.R. § 302 were found at elevated levels at the Site. The 1996 report "Contaminant Assessment of Patrick Bayou" revealed that sediment samples in Patrick Bayou exceeded either the TNRCC [now TCEQ] sediment screening levels and/or National Oceanic and Atmospheric Administration (NOAA) Effects-Range Low and Effect-Range Median values for mercury, lead, copper, zinc, chromium, acenaphthene, acenaphthylene, anthracene, fluorene, naphthalene, phenanthrene, benzo(a)anthracene, benzo(a)pyrene, fluoranthene, pyrene, and polychlorinated biphenyls (PCBs).

15. Exposure to elevated levels of the substances identified in Paragraph 14 above can result in acute and chronic toxicity to sediment-dwelling organisms. Toxicity tests for percent survival have been conducted on selected species of aquatic life. The survival rates indicate the presence of toxic sediments in Patrick Bayou.

16. The Patrick Bayou site was finalized on the National Priorities List on September 5, 2002 (67 FR 56757).

17. Each of the following persons are current or former owners and operators of facilities which released hazardous substances or arranged for the disposal or treatment of hazardous substances at the Site:

a. Respondent The Lubrizol Corporation is a corporation incorporated in the state of Ohio.

b. Respondent Occidental Chemical Corporation, successor to Diamond Shamrock Chemicals Company, is a corporation incorporated in the state of New York.

c. Praxair, Inc. is a corporation incorporated in the state of Delaware.

d. Rohm & Haas Company is a corporation incorporated in the state of Delaware.

e. Respondent Shell Oil Company is a corporation incorporated in the state of Delaware, and is acting on behalf of Deer Park Refining Limited Partnership, a Delaware limited partnership, and Shell Chemical LP.

18. On October 10, 2002, the EPA issued General Notice Letters to Respondents notifying them of the potential liability that they have incurred or may have incurred with respect to the Site. In July 2004, the EPA issued Special Notice letters to The Lubrizol Corporation, Occidental Chemical Corporation, Praxair, Inc., Rohm and Haas Company, Shell Chemical Company and Shell Deer Park Oil Refinery.

VI. CONCLUSIONS OF LAW AND DETERMINATIONS

Based on the Findings of Fact set forth above, EPA has determined that:

19. The Site is a "facility" as defined in Section 101(9) of CERCLA, 42 U.S.C. § 9601(9).

20. The contamination found at the Site, as identified in the Findings of Fact above, includes "hazardous substances" as defined in Section 101(14) of CERCLA, 42 U.S.C. § 9601(14), or constitute "any pollutant or contaminant" that may present an imminent and substantial danger to public health or welfare under section 104(a)(1) of CERCLA.

21. The presence of hazardous substances at the Site or the past, present or potential migration of hazardous substances currently located at or emanating from the Site, constitute actual and/or threatened "releases" as defined in section 101(22) of CERCLA, 42 U.S.C. § 9601(22).

22. Each Respondent is a "person" as defined in section 101(21) of CERCLA, 42 U.S.C. § 9601(21).

23. Respondents are responsible parties under sections 104, 107 and 122 of CERCLA, 42 U.S.C. §§ 9604, 9607 and 9622.

24. The actions required by this Settlement Agreement are necessary to protect the public health or welfare or the environment, are in the public interest, 42 U.S.C. § 9622(a), are

consistent with CERCLA and the NCP, 42 U.S.C. §§ 9604(a)(1), 9622(a), and will expedite effective remedial action and minimize litigation, 42 U.S.C. § 9622(a).

25. EPA has determined that Respondents are qualified to conduct the RI/FS within the meaning of Section 104(a) of CERCLA, 42 U.S.C. § 9604(a), and will carry out the Work properly and promptly, in accordance with Sections 104(a) and 122(a) of CERCLA, 42 U.S.C. §§ 9604(a) and 9622(a), if Respondents comply with the terms of this Settlement Agreement.

VII. SETTLEMENT AGREEMENT AND ORDER

26. Based upon the foregoing Findings of Fact and Conclusions of Law and Determinations, it is hereby Ordered and Agreed that Respondents shall comply with all provisions of this Settlement Agreement, including, but not limited to, all attachments to this Settlement Agreement and all documents incorporated by reference into this Settlement Agreement.

VIII. DESIGNATION OF CONTRACTORS AND PROJECT COORDINATORS

27. Selection of Contractors, Personnel. All Work performed under this Settlement Agreement shall be under the direction and supervision of qualified personnel. Within 30 days of the Effective Date of this Settlement Agreement, and before the Work outlined below begins, Respondents shall notify EPA in writing of the names, titles, and qualifications of the personnel, including contractors, subcontractors, consultants and laboratories to be used in carrying out such Work. With respect to any proposed contractor, Respondents shall demonstrate that the proposed contractor has a quality system which complies with ANSI/ASQC E4-1994, "Specifications and Guidelines for Quality Systems for Environmental Data Collection and Environmental Technology Programs," (American National Standard, January 5, 1995, or most recent version), by submitting a copy of the proposed contractor's Quality Management Plan ("QMP"). The QMP should be prepared in accordance with "EPA Requirements for Quality Management Plans (QA/R-2)," (EPA/240/B-01/002, March 2001 or subsequently issued guidance) or equivalent documentation as determined by EPA. The qualifications of the persons undertaking the Work for Respondents shall be subject to EPA's review, for verification that such persons meet minimum technical background and experience requirements. This Settlement Agreement is contingent on Respondents' demonstration to EPA's satisfaction that Respondents are qualified to perform properly and promptly the actions set forth in this Settlement Agreement. If EPA disapproves in writing of any person's technical qualifications, Respondents shall notify EPA of the identity and qualifications of the replacement within 45 days of the written notice. If EPA subsequently disapproves of the replacement, EPA reserves the right to terminate this Settlement Agreement and to conduct a complete RI/FS, and to seek reimbursement for costs and penalties from Respondents. During the course of the RI/FS, Respondents shall notify EPA in writing of any changes or additions in the personnel used to carry out such Work, providing their names, titles, and qualifications. EPA shall have the same right to disapprove changes and additions to personnel as it has hereunder regarding the initial notification.

28. On or before the Effective Date, Respondents shall designate a Project Coordinator who shall be responsible for administration of all actions by Respondents required by this Settlement Agreement and shall submit to EPA the designated Project Coordinator's name, address, telephone number, and qualifications. To the greatest extent possible, the Project Coordinator shall be present on Site or readily available during Site Work. EPA retains the right to disapprove of the designated Project Coordinator. Respondents shall have the right to change their Project Coordinator, subject to EPA's right to disapprove. Respondents shall notify EPA 10 days before such a change is made. The initial notification may be made orally, but shall be

promptly followed by a written notification. Receipt by Respondents' Project Coordinator of any notice or communication from EPA relating to this Settlement Agreement shall constitute receipt by Respondents. Documents to be submitted to the Respondents shall be sent to Respondents' Project Coordinator, Bob Piniewski, de maximis, 2203 Timberloch Place, Suite 213, Woodlands, TX 77380.

29. EPA has designated Philip Allen of the Superfund Division, EPA Region 6, as its Project Coordinator. EPA will notify Respondents of a change of its designated Project Coordinator. Except as otherwise provided in this Settlement Agreement, Respondents shall direct all submissions required by this Settlement Agreement to the Project Coordinator at U.S. EPA Region 6, Superfund Division (6SF-AP), 1445 Ross Avenue, Suite 1200, Dallas, Texas 75202, by certified mail, return receipt requested.

30. EPA's Project Coordinator shall have the authority lawfully vested in a Remedial Project Manager ("RPM") and On-Scene Coordinator ("OSC") by the NCP. In addition, EPA's Project Coordinator shall have the authority consistent with the NCP, to halt any Work required by this Settlement Agreement, and to take any necessary response action when s/he determines that conditions at the Site may present an immediate endangerment to public health or welfare or the environment. The absence of the EPA Project Coordinator from the area under study pursuant to this Settlement Agreement shall not be cause for the stoppage or delay of Work.

31. EPA shall arrange for a qualified person to assist in its oversight and review of the conduct of the RI/FS, as required by Section 104(a) of CERCLA, 42 U.S.C. Section 9604(a). Such person shall have the authority to observe Work and make inquiries in the absence of EPA, but not to modify the RI/FS Work Plan.

IX. WORK TO BE PERFORMED

32. Respondents shall conduct the Work in accordance with the provisions of this Settlement Agreement, CERCLA, the NCP, and all applicable EPA guidance including, but not limited to, the "Interim Final Guidance for Conducting Remedial Investigations and Feasibility Studies under CERCLA" (OSWER Directive # 9355.3-01, October 1988, or subsequently issued guidance), "Guidance for Data Useability in Risk Assessment" (OSWER Directive #9285.7-05, October 1990 or subsequently issued guidance), guidances referenced therein, and guidances referenced in the Statement of Work, as may be amended or modified by EPA. The Remedial Investigation ("RI") shall consist of collecting data to characterize site conditions, and determining the nature and extent of the contamination at or from the Site to the extent necessary to select a remedy. It shall also consist of assessing risk to human health and the environment and conducting treatability testing as necessary to evaluate the potential performance and cost of the treatment technologies that are being considered. The Feasibility Study ("FS") shall determine and evaluate (based on treatability testing, where appropriate) alternatives for remedial action to prevent, mitigate or otherwise respond to or remedy the release or threatened release of hazardous substances, pollutants, or contaminants at or from the Site. The alternatives evaluated must include, but shall not be limited to, the range of alternatives described in the NCP, and shall include remedial actions that utilize permanent solutions and alternative treatment technologies or resource recovery technologies to the maximum extent practicable. In evaluating the alternatives, Respondents shall address the factors required to be taken into account by Section 121 of CERCLA, 42 U.S.C. § 9621, and Section 300.430(e) of the NCP, 40 C.F.R. § 300.430(e).

33. The tasks that Respondents must perform are described more fully in the Statement of Work and guidances. The activities and deliverables identified in the SOW shall be performed

and submitted to EPA as provided in the SOW. All work performed under this Settlement Agreement shall be in accordance with the schedules herein or established in the SOW, and in full accordance with the standards, specifications, and other requirements of the Work Plan and sampling and analysis plan, as initially approved or modified by EPA, and as may be amended or modified by EPA from time to time pursuant to this Settlement Agreement.

34. In accordance with the schedules established in this Settlement Agreement or in the SOW, Respondents shall submit to EPA and the State two paper copies, and one electronic copy, of all plans, reports, submittals and other deliverables required under this Settlement Agreement, the SOW and the RI/FS Work Plan. All plans, reports, submittals and other deliverables will be reviewed by EPA pursuant to Section X (EPA Approval of Plans and Other Submissions). Upon request by EPA, Respondents shall submit in electronic form all portions of any report or other deliverable Respondents are required to submit pursuant to provisions of this Settlement Agreement.

35. Modification of the RI/FS Work Plan.

a. If at any time during the RI/FS process, Respondents identify a need for additional data, Respondents shall submit a memorandum documenting the need for additional data to the EPA Project Coordinator within 30 days of identification. EPA in its discretion will determine whether the additional data will be collected by Respondents and whether it will be incorporated into reports and deliverables.

b. The RI/FS Work Plan may be modified by means of a Work Plan Refinement Notice pursuant to Paragraph B, Task II: RI/FS Work Plan (Sampling and Analysis Plan), of the Statement of Work.

c. In the event of unanticipated or changed circumstances at the Site that may affect conduct of the Work or the schedule under this Settlement Agreement, Respondents shall notify the EPA Project Coordinator by telephone of the unanticipated or changed circumstances as soon as practicable, but no longer than three (3) days from discovery of the of the unanticipated or changed circumstances. In addition to the authorities in the NCP, in the event that EPA determines that an emergency response pursuant to Paragraph 39 or the unanticipated or changed circumstances warrant changes in the RI/FS Work Plan, EPA or Respondents at the direction of EPA shall modify or amend the RI/FS Work Plan in writing accordingly. Respondents shall perform the RI/FS Work Plan as modified or amended.

d. EPA may determine that in addition to tasks defined in the initially approved RI/FS Work Plan, other additional Work may be necessary to accomplish the objectives of the RI/FS. Respondents agree to perform these response actions in addition to those required by the initially approved RI/FS Work Plan, including any approved modifications, if EPA determines that such actions are necessary for a complete RI/FS.

e. Respondents shall confirm their willingness to perform the additional Work in writing to EPA within 7 days of receipt of the EPA request. If Respondents object to any modification determined by EPA to be necessary pursuant to this Paragraph, Respondents may seek dispute resolution pursuant to Section XV (Dispute Resolution). The SOW and/or RI/FS Work Plan shall be modified in accordance with the final resolution of the dispute.

f. Respondents shall complete the additional Work according to the standards, specifications, and schedule set forth or approved by EPA in a written modification to the RI/FS Work Plan or written RI/FS Work Plan supplement. EPA reserves the right to conduct the Work

itself at any point, to seek reimbursement from Respondents, and/or to seek any other appropriate relief.

g. Nothing in this Paragraph shall be construed to limit EPA's authority to require performance of further response actions at the Site.

36. Off-Site Shipment of Waste Material. Respondents shall, prior to any off-site shipment of Waste Material from the Site to an out-of-state waste management facility, provide written notification of such shipment of Waste Material to the appropriate state environmental official in the receiving facility's state and to EPA's Designated Project Coordinator. However, this notification requirement shall not apply to any off-site shipments when the total volume of all such shipments will not exceed 10 cubic yards.

a. Respondents shall include in the written notification the following information: (1) the name and location of the facility to which the Waste Material is to be shipped; (2) the type and quantity of the Waste Material to be shipped; (3) the expected schedule for the shipment of the Waste Material; and (4) the method of transportation. Respondents shall notify the state in which the planned receiving facility is located of major changes in the shipment plan, such as a decision to ship the Waste Material to another facility within the same state, or to a facility in another state.

b. The identity of the receiving facility and state will be determined by Respondents following the award of the contract for the remedial investigation and feasibility study. Respondents shall provide the information required by Subparagraph 36.a and 36.c as soon as practicable after the award of the contract and before the Waste Material is actually shipped.

c. Before shipping any hazardous substances, pollutants, or contaminants from the Site to an off-site location, Respondents shall obtain EPA's certification that the proposed receiving facility is operating in compliance with the requirements of CERCLA Section 121(d)(3), 42 U.S.C. § 9621(d)(3), and 40 C.F.R. § 300.440. Respondents shall only send hazardous substances, pollutants, or contaminants from the Site to an off-site facility that complies with the requirements of the statutory provision and regulation cited in the preceding sentence.

37. Meetings. Respondents shall make presentations at, and participate in, meetings at the request of EPA during the initiation, conduct, and completion of the RI/FS. In addition to discussion of the technical aspects of the RI/FS, topics will include anticipated problems or new issues. Meetings will be scheduled upon mutual agreement at locations, dates, and times agreed upon by the parties, but shall occur once every two months, at a minimum, during the initiation, conduct, and completion of all activities under this Settlement Agreement. By mutual agreement, the meetings may be held by telephone.

38. Progress Reports. In addition to the deliverables set forth in this Settlement Agreement, Respondents shall provide to EPA monthly progress reports by the 15th day of the following month. At a minimum, with respect to the preceding month, these progress reports shall (1) describe the actions which have been taken to comply with this Settlement Agreement during that month, (2) include a summary of all results of sampling and tests and all other data received by Respondents, (3) describe Work planned for the next two months with schedules relating such Work to the overall project schedule for RI/FS completion, and (4) describe all problems encountered and any anticipated problems, any actual or anticipated delays, and solutions developed and implemented to address any actual or anticipated problems or delays.

39. Emergency Response and Notification of Releases.

a. In the event of any action or occurrence during performance of the Work which causes or threatens a release of Waste Material from the Site that constitutes an emergency situation or may present an immediate threat to public health or welfare or the environment, Respondents shall immediately take all appropriate action. Respondents shall take these actions in accordance with all applicable provisions of this Settlement Agreement, including, but not limited to, the Health and Safety Plan, in order to prevent, abate or minimize such release or endangerment caused or threatened by the release. Respondents shall also immediately notify the EPA Project Coordinator or, in the event of his/her unavailability, the On Scene Coordinator ("OSC") or the Regional Duty Officer of the incident or Site conditions. The Regional Duty Officer's (Emergency Planning and Response Branch, EPA Region 6) telephone number is 214-665-6428. The EPA Regional Emergency 24-hour telephone number is 866-372-7745. In the event that Respondents fail to take appropriate response action as required by this Paragraph, and EPA takes such action instead, Respondents shall reimburse EPA all costs of the response action not inconsistent with the NCP pursuant to Section XVIII (Payment of Response Costs).

b. In addition, in the event of any release of a hazardous substance from the Site, Respondents shall immediately notify the EPA Project Coordinator, the OSC or Regional Duty Officer at 866-372-7745 and the National Response Center at (800) 424-8802. Respondents shall submit a written report to EPA within 7 days after each release; setting forth the events that occurred and the measures taken or to be taken to mitigate any release or endangerment caused or threatened by the release and to prevent the reoccurrence of such a release. This reporting requirement is in addition to, and not in lieu of, reporting under Section 103(c) of CERCLA, 42 U.S.C. § 9603(c), and Section 304 of the Emergency Planning and Community Right-To-Know Act of 1986, 42 U.S.C. § 11004, *et seq.*

X. EPA APPROVAL OF PLANS AND OTHER SUBMISSIONS

40. After review of any plan, report or other item that is required to be submitted for approval pursuant to this Settlement Agreement, EPA shall: (a) approve, in whole or in part, the submission; (b) approve the submission upon specified conditions; (c) modify the submission to cure the deficiencies following notice and an opportunity to cure as described in this paragraph; (d) disapprove, in whole or in part, the submission, directing that Respondents modify the submission; or (e) any combination of the above. However, EPA shall not modify a submission without first providing Respondents at least one notice of deficiency and an opportunity to cure within 30 days, except where to do so would cause serious disruption to the Work or where previous submission(s) have been disapproved due to material defects. At EPA's discretion, Respondents shall fully correct all deficiencies identified by EPA and incorporate and integrate all information and comments supplied by EPA either in subsequent or resubmitted deliverables, in accordance with the schedule in the Statement of Work.

41. In the event of approval, approval upon conditions, or modification by EPA, pursuant to Subparagraph 40(a), (b), (c) or (e), Respondents shall proceed to take any action required by the plan, report or other item, as approved or modified by EPA subject only to their right to invoke the Dispute Resolution procedures set forth in Section XV (Dispute Resolution) with respect to the modifications or conditions made by EPA. Following EPA approval or modification of a submittal or portion thereof, Respondents shall not thereafter alter or amend such submittal or portion thereof unless directed by EPA. EPA's approval, approval upon conditions, or modifications pursuant to Paragraph 40 shall be provided in writing. In the event that EPA modifies the submission to cure the deficiencies pursuant to Subparagraph 40(c) and

the original submission had a material defect, EPA retains the right to seek stipulated penalties, as provided in Section XVI (Stipulated Penalties).

42. Resubmission of Plans.

a. Upon receipt of a notice of disapproval, Respondents shall, within 30 days or such longer time as specified by EPA in such notice, correct the deficiencies and resubmit the plan, report, or other item for approval. Any stipulated penalties applicable to the submission, as provided in Section XVI, shall accrue during the 30-day period or otherwise specified period but shall not be payable unless the resubmission is disapproved or modified due to a material defect as provided in Paragraphs 43 and 44.

b. Notwithstanding the receipt of a notice of disapproval, Respondents shall proceed to take any action required by any non-deficient portion of the submission, unless otherwise directed by EPA. Implementation of any non-deficient portion of a submission shall not relieve Respondents of any liability for stipulated penalties under Section XVI (Stipulated Penalties).

c. Respondents shall not proceed further with any subsequent activities or tasks until receiving EPA approval for the following deliverables: Preliminary Site Characterization Report, RI/FS Work Plan and Sampling and Analysis Plan, Baseline Human Health Risk Assessment, Baseline Ecological Risk Assessment Report, Remedial Investigation Report, Treatability Testing Work Plan and Sampling and Analysis Plan, and Feasibility Study Report. While awaiting EPA approval on these deliverables, Respondents shall proceed with all other tasks and activities which may be conducted independently of these deliverables, in accordance with the schedule set forth in this Settlement Agreement.

d. For all remaining deliverables not enumerated above in subparagraph 42c., Respondents shall proceed with all subsequent tasks, activities and deliverables without awaiting EPA approval on the submitted deliverable. EPA reserves the right to stop Respondents from proceeding further, either temporarily or permanently, on any task, activity or deliverable at any point during the RI/FS. If EPA decides to stop work on a task, activity or deliverable, Respondents shall not be subject to stipulated penalties for the failure to perform such work during the time period covered by the work stoppage if the failure to perform results solely from the EPA decision to stop work and the EPA decision to stop work is not related to a violation of this Settlement Agreement by Respondents.

43. If EPA disapproves a resubmitted plan, report or other item, or portion thereof, EPA may again direct Respondents to correct the deficiencies. EPA shall also retain the right to modify or develop the plan, report or other item. Respondents shall implement any such plan, report, or item as corrected, modified or developed by EPA, subject only to their right to invoke the procedures set forth in Section XV (Dispute Resolution).

44. If upon resubmission, a plan, report, or item is disapproved or modified by EPA, Respondents shall be deemed to have failed to submit such plan, report, or item timely and adequately unless Respondents invoke the dispute resolution procedures in accordance with Section XV (Dispute Resolution) and EPA's action is revoked or substantially modified pursuant to a Dispute Resolution decision issued by EPA or superceded by an agreement reached pursuant to that Section. The provisions of Section XV (Dispute Resolution) and Section XVI (Stipulated Penalties) shall govern the implementation of the Work and accrual and payment of any stipulated penalties during Dispute Resolution. If EPA's disapproval or modification is not otherwise revoked, substantially modified or superceded as a result of a decision or agreement

reached pursuant to the Dispute Resolution process set forth in Section XV, stipulated penalties shall accrue for such violation from the date on which the initial submission was originally required, as provided in Section XVI.

45. In the event that EPA takes over some of the tasks, but not the preparation of the RI Report or the FS Report, Respondents shall incorporate and integrate information supplied by EPA into the final reports.

46. All plans, reports, and other items submitted to EPA by Respondents under this Settlement Agreement shall, upon approval or modification by EPA, be incorporated into and enforceable under this Settlement Agreement. In the event EPA approves or modifies a portion of a plan, report, or other item submitted to EPA under this Settlement Agreement, the approved or modified portion shall be incorporated into and enforceable under this Settlement Agreement.

47. Neither failure of EPA to expressly approve or disapprove of Respondents' submissions within a specified time period, nor the absence of comments, shall be construed as approval by EPA. Whether or not EPA gives express approval for Respondents' deliverables, Respondents are responsible for preparing deliverables acceptable to EPA.

XI. QUALITY ASSURANCE, SAMPLING, AND ACCESS TO INFORMATION

48. Quality Assurance. Respondents shall assure that Work performed, samples taken and analyses conducted conform to the requirements of the SOW, the QAPP and guidances identified therein. Respondents will assure that field personnel used by Respondents are properly trained in the use of field equipment and in chain of custody procedures. Respondents shall only use laboratories which have a documented quality system that complies with "EPA Requirements for Quality Management Plans (QA/R-2)" (EPA/240/B-01/002, March 2001) or equivalent documentation as determined by EPA.

49. Sampling.

a. All results of sampling, tests, modeling or other data (including raw data) generated by Respondents, or on Respondents' behalf, during the period that this Settlement Agreement is effective, shall be submitted to EPA in periodic data reports as set forth in the SOW and scheduled in the RI/FS Work Plan. All results of sampling, tests, modeling or other data shall be submitted electronically in a format compatible with ArcView. EPA will make available to Respondents validated data generated by EPA unless it is exempt from disclosure by any federal or state law or regulation.

b. Respondents shall verbally notify EPA at least 15 days prior to conducting significant field events as described in the SOW, RI/FS Work Plan or sampling and analysis plan. At EPA's verbal or written request, or the request of EPA's oversight assistant, Respondents shall allow split or duplicate samples to be taken by EPA (and its authorized representatives) or the State of any samples collected in implementing this Settlement Agreement. All split samples of Respondents shall be managed, handled and analyzed by the methods identified in the QAPP.

50. Access to Information.

a. Respondents shall provide to EPA, upon request, copies of all documents and information within their possession or control or that of their contractors or agents relating to

activities at the Site or to the implementation of this Settlement Agreement, including, but not limited to, sampling, analysis, chain of custody records, manifests, trucking logs, receipts, reports, sample traffic routing, correspondence, or other documents or information related to the Work. Respondents shall also make available to EPA, for purposes of investigation, information gathering, or testimony, their employees, agents, or representatives with knowledge of relevant facts concerning the performance of the Work. EPA will make available to Respondents, validated data generated by EPA unless it is exempt from disclosure by any federal or state law or regulation.

b. Respondents may assert business confidentiality claims covering part or all of the documents or information submitted to EPA under this Settlement Agreement to the extent permitted by and in accordance with Section 104(e)(7) of CERCLA, 42 U.S.C. § 9604(e)(7), and 40 C.F.R. § 2.203(b). Documents or information determined to be confidential by EPA will be afforded the protection specified in 40 C.F.R. Part 2, Subpart B. If no claim of confidentiality accompanies documents or information when it is submitted to EPA, or if EPA has notified Respondents that the documents or information are not confidential under the standards of Section 104(e)(7) of CERCLA or 40 C.F.R. Part 2, Subpart B, the public may be given access to such documents or information without further notice to Respondents. Respondents shall segregate and clearly identify all documents or information submitted under this Settlement Agreement for which Respondents assert business confidentiality claims.

c. Respondents may assert that certain documents, records and other information are privileged under the attorney-client privilege or any other privilege recognized by federal law. If the Respondents assert such a privilege in lieu of providing documents, they shall provide EPA with the following: 1) the title of the document, record, or information; 2) the date of the document, record, or information; 3) the name and title of the author of the document, record, or information; 4) the name and title of each addressee and recipient; 5) a description of the contents of the document, record, or information; and 6) the privilege asserted by Respondents. However, no documents, reports or other information created or generated pursuant to the requirements of this Settlement Agreement shall be withheld on the grounds that they are privileged.

d. No claim of confidentiality shall be made with respect to any data, including, but not limited to, all sampling, analytical, monitoring, hydrogeologic, scientific, chemical, or engineering data, or any other documents or information evidencing conditions at or around the Site.

51. In entering into this Settlement Agreement, Respondents waive any objections to any data gathered, generated, or evaluated by EPA, the State or Respondents in the performance or oversight of the Work that has been verified according to the quality assurance/quality control ("QA/QC") procedures required by the Settlement Agreement or any EPA-approved RI/FS Work Plans or Sampling and Analysis Plans. If Respondents object to any other data relating to the RI/FS, Respondents shall submit to EPA a report that specifically identifies and explains its objections, describes the acceptable uses of the data, if any, and identifies any limitations to the use of the data. The report must be submitted to EPA within 15 days of the monthly progress report containing the data.

XII. SITE ACCESS

52. If the Site, or any other property where access is needed to implement the Work or any other requirement of this Settlement Agreement, is owned or controlled by any of Respondents, such Respondents shall, commencing on the Effective Date, provide EPA and its

representatives, including contractors, with access at all reasonable times to the Site, or such other property, for the purpose of conducting any activity related to this Settlement Agreement.

53. Where any action under this Settlement Agreement is to be performed in areas owned by or in possession of someone other than Respondents, Respondents shall use their best efforts to obtain all necessary access agreements within 30 days after the Effective Date, or longer period as otherwise specified in writing by the EPA Project Coordinator. Respondents shall immediately notify EPA if after using their best efforts they are unable to obtain such agreements. For purposes of this Paragraph, "best efforts" includes the payment of reasonable sums of money in consideration of access. Respondents shall describe in writing their efforts to obtain access. If Respondents cannot obtain access agreements, EPA may either (i) obtain access for Respondents or assist Respondents in gaining access, to the extent necessary to effectuate the response actions described herein, using such means as EPA deems appropriate; (ii) perform those tasks or activities with EPA contractors; or (iii) terminate the Settlement Agreement. Respondents shall reimburse EPA for all costs and attorney's fees incurred by the United States in obtaining such access, in accordance with the procedures in Section XVIII (Payment of Response Costs). If EPA performs those tasks or activities with EPA contractors and does not terminate the Settlement Agreement, Respondents shall perform all other activities not requiring access to that property, and shall reimburse EPA for all costs incurred in performing such activities. Respondents shall integrate the results of any such tasks undertaken by EPA into its reports and deliverables.

54. Notwithstanding any provision of this Settlement Agreement, EPA retains all of its access authorities and rights, including enforcement authorities related thereto, under CERCLA, RCRA, and any other applicable statutes or regulations.

XIII. COMPLIANCE WITH OTHER LAWS

55. Respondents shall comply with all applicable local, state and federal laws when performing the RI/FS. No local, state, or federal permit shall be required for any portion of any action conducted entirely on-site, including studies, if the action is selected and carried out in compliance with Section 121 of CERCLA, 42 U.S.C. § 9621. Where any portion of the Work is to be conducted off-site and requires a federal or state permit or approval, Respondents shall submit timely and complete applications and take all other actions necessary to obtain and to comply with all such permits or approvals. This Settlement Agreement is not, and shall not be construed to be, a permit issued pursuant to any federal or state statute or regulation.

XIV. RETENTION OF RECORDS

56. During the pendency of this Settlement Agreement and for a minimum of 6 years after commencement of construction of any remedial action, each Respondent shall preserve and retain all non-identical copies of records and documents (including records or documents in electronic form) now in its possession or control or which come into its possession or control that relate in any manner to the performance of the Work or the liability of any person under CERCLA with respect to the Site, regardless of any corporate retention policy to the contrary. Until 6 years after commencement of construction of any remedial action, Respondents shall also instruct their contractors and agents to preserve all documents, records, and information of whatever kind, nature or description relating to performance of the Work. Respondents may, if EPA approves, retain only electronic copies of records after EPA approval of the completion of the construction of any remedial action.

57. At the conclusion of this document retention period, Respondents shall notify EPA at least 90 days prior to the destruction of any such records or documents, and, upon request by EPA, Respondents shall deliver any such records or documents to EPA. Respondents may assert that certain documents, records and other information are privileged under the attorney-client privilege or any other privilege recognized by federal law. If Respondents assert such a privilege, they shall provide EPA with the following: 1) the title of the document, record, or information; 2) the date of the document, record, or information; 3) the name and title of the author of the document, record, or information; 4) the name and title of each addressee and recipient; 5) a description of the subject of the document, record, or information; and 6) the privilege asserted by Respondents. However, no documents, reports or other information created or generated pursuant to the requirements of this Settlement Agreement shall be withheld on the grounds that they are privileged.

58. Each Respondent hereby certifies individually that to the best of its knowledge and belief, after thorough inquiry, it has not altered, mutilated, discarded, destroyed or otherwise disposed of any records, documents or other information (other than identical copies) relating to its potential liability regarding the Site since notification of potential liability by EPA or the filing of suit against it regarding the Site and that it has fully complied with any and all EPA requests for information pursuant to Sections 104(e) and 122(e) of CERCLA, 42 U.S.C. §§ 9604(e) and 9622(e), and Section 3007 of RCRA, 42 U.S.C. § 6927.

XV. DISPUTE RESOLUTION

59. Unless otherwise expressly provided for in this Settlement Agreement, the dispute resolution procedures of this Section shall be the exclusive mechanism for resolving disputes arising under this Settlement Agreement. The Parties shall attempt to resolve any disagreements concerning this Settlement Agreement expeditiously and informally.

60. If Respondents object to any EPA action taken pursuant to this Settlement Agreement, including billings for Future Response Costs, they shall notify EPA in writing of their objection(s) within 21 days of such action, unless the objection(s) has/have been resolved informally. EPA and Respondents shall have 21 days from EPA's receipt of Respondents' written objection(s) to resolve the dispute (the "Negotiation Period"). The Negotiation Period may be extended at the sole discretion of EPA. Such extension may be granted verbally but must be confirmed in writing.

61. Any agreement reached by the Parties pursuant to this Section shall be in writing and shall, upon signature by the Parties, be incorporated into and become an enforceable part of this Settlement Agreement; pursuant to Paragraph 73 of this Settlement Agreement, as part of any such agreement EPA may, in its unreviewable discretion, waive any portion of stipulated penalties that have accrued pursuant to this Settlement Agreement. If the Parties are unable to reach an agreement within the Negotiation Period, the Regional Judicial Officer will issue a written decision. EPA's decision shall be incorporated into and become an enforceable part of this Settlement Agreement. Respondents' obligations under this Settlement Agreement shall not be tolled by submission of any objection for dispute resolution under this Section. Following resolution of the dispute, as provided by this Section, Respondents shall fulfill the requirement that was the subject of the dispute in accordance with the agreement reached or with EPA's decision, whichever occurs, and regardless of whether Respondents agree with the decision. In the event that the Respondents prevail on a disputed issue, no stipulated penalties accruing as a result of that disputed issue shall be assessed. In the event that the Respondents do not prevail on

a disputed issue, stipulated penalties shall be assessed and paid as provided in Section XVI (Stipulated Penalties).

XVI. STIPULATED PENALTIES

62. Respondents shall be liable to EPA for stipulated penalties in the amounts set forth in Paragraphs 63, 64, 65, and 66 for failure to comply with any of the requirements of this Settlement Agreement specified below unless excused under Section XVII (Force Majeure). "Compliance" by Respondents shall include completion of the Work under this Settlement Agreement or any activities contemplated under any RI/FS Work Plan or other plan approved under this Settlement Agreement identified below, in accordance with all applicable requirements of law, this Settlement Agreement, the SOW, and any plans or other documents approved by EPA pursuant to this Settlement Agreement and within the specified time schedules established by and approved under this Settlement Agreement.

63. For each day that the Respondents fail to complete a deliverable in a timely manner or fail to produce a deliverable of acceptable quality, Respondents shall be liable for stipulated penalties below. Where a revised submission by Respondents is required, stipulated penalties shall continue to accrue until a satisfactory deliverable is produced.

a.. For the following major deliverables, stipulated penalties shall accrue in the amount of \$500 per day, per violation, for the first seven days of noncompliance; \$2,000 per day, per violation, for the 8th through 14th day of noncompliance; \$5,000 per day, per violation, for the 15th day and beyond of noncompliance.

- (1) Preliminary Site Characterization Report.
- (2) RI/FS Work Plan.
- (3) Baseline Human Health Risk Assessment.
- (4) Screening Level Ecological Risk Assessment Report.
- (5) Baseline Ecological Risk Assessment Report.
- (6) Remedial Investigation Report.
- (7) Feasibility Study Report.

b. For the following interim deliverables, stipulated penalties shall accrue in the amount of \$500 per day, per violation, for the first week of noncompliance; \$750 per day, per violation, for the 8th through 14th day of noncompliance; and \$1,200 per day, per violation, for the 15th day through the 30th day of noncompliance; and \$2,000 per day per violation for all violations lasting beyond 30 days.

- (1) Baseline Ecological Risk Assessment Problem Formulation Report.
- (2) Baseline Ecological Risk Assessment Work Plan and Sampling and Analysis Plan.
- (3) Treatability Studies Work Plan, Sampling and Analysis Plan, and Health and Safety Plan (if required).

(4) Technical Memorandum on Development and Preliminary Screening of Remedial Alternatives.

64. For the monthly progress reports, stipulated penalties shall accrue in the amount of \$100 per day, per violation, for the first week of noncompliance; \$1500 per day, per violation, for the 8th through 30th day of noncompliance; and \$2,000 per day, per violation, for the 30th day and beyond of noncompliance.

65. For each failure to cease activity when the EPA Project Coordinator or EPA designated site representative orders either an oral or written cessation or halt of activities pursuant to Paragraph 30 of this Settlement Agreement, the Respondents shall pay a stipulated penalty of \$27,500 per day.

66. Respondents shall pay Stipulated Penalties in an amount not to exceed Two Thousand Dollars (\$2,000.00) per day for each violation of the SOW, the Work Plan, Health and Safety Plan, SAP, QA/QC Plan, or any other EPA approved plan required pursuant to this Settlement Agreement, where that violation concerns or results in a release or threatened release of hazardous substances which may pose an imminent and substantial endangerment to human health or the environment. Any EPA Project Coordinator's determination that Respondents have failed to comply with the SOW, the Work Plan, Health and Safety Plan, SAP, QA/QC Plan, or any other EPA approved plan shall be subject to dispute resolution as provided in Section XV.

67. All penalties shall begin to accrue on the day after the complete performance is due or the day a violation occurs, and shall continue to accrue through the final day of the correction of the noncompliance or completion of the activity. However, stipulated penalties shall not accrue: (1) with respect to a deficient submission under Section X (EPA Approval of Plans and Other Submissions), during the period, if any, beginning on the 31st day after EPA's receipt of such submission until the date that EPA notifies Respondents of any deficiency; (2) with respect to a decision by the Regional Judicial Officer designated in Paragraph 61 of Section XV (Dispute Resolution), during the period, if any, beginning on the 21st day after the Negotiation Period begins until the date that the EPA Regional Judicial Officer issues a final decision regarding such dispute; and (3) with respect to violations under Paragraph 66 of this Settlement Agreement, during the period, if any, beginning on the 3rd day after EPA's determination that a violation has occurred until the date that EPA notifies the Respondents of any deficiency. Nothing herein shall prevent the simultaneous accrual of separate penalties for separate violations of this Settlement Agreement.

68. Following EPA's determination that Respondents have failed to comply with a requirement of this Settlement Agreement, EPA may give Respondents written notification of the same and describe the noncompliance. EPA may send Respondents a written demand for the payment of the penalties. However, penalties shall accrue as provided in the preceding Paragraph regardless of whether EPA has notified Respondents of a violation.

69. All penalties accruing under this Section shall be due and payable to EPA within 30 days of Respondents' receipt from EPA of a demand for payment of the penalties, unless Respondents invoke the dispute resolution procedures in accordance with Section XV (Dispute Resolution). All payments to EPA under this Section shall be paid by certified or cashier's check(s) made payable to "EPA Hazardous Substances Superfund". Respondents shall make all payments by forwarding the check to:

U.S. Environmental Protection Agency
Superfund Accounting

P.O. Box 360582M
Pittsburgh, PA 15251

Respondents shall indicate that the payment is for stipulated penalties and shall reference EPA Region 6 and Site/Spill ID Number "06JT", the EPA Docket Number CERCLA 6-07-05 , and the name and address of the parties making payment. Copies of the check(s) paid pursuant to this Section, and any accompanying transmittal letter(s), shall be sent to EPA as follows:

Chief, Cost Recovery Section (6SF-AC)
U.S. Environmental Protection Agency
1445 Ross Avenue
Dallas, TX 75202.

70. The payment of penalties shall not alter in any way Respondents' obligation to complete performance of the Work required under this Settlement Agreement.

71. Penalties shall continue to accrue as provided in Paragraph 67 during any dispute resolution period, but need not be paid until 30 days after the dispute is resolved by agreement or by receipt of EPA's decision.

72. If Respondents fail to pay stipulated penalties when due, EPA may institute proceedings to collect the penalties, as well as Interest. Respondents shall pay Interest on the unpaid balance, which shall begin to accrue on the date of demand made pursuant to Paragraph 69.

73. Nothing in this Settlement Agreement shall be construed as prohibiting, altering, or in any way limiting the ability of EPA to seek any other remedies or sanctions available by virtue of Respondents' violation of this Settlement Agreement or of the statutes and regulations upon which it is based, including, but not limited to, penalties pursuant to Section 122(l) of CERCLA, 42 U.S.C. § 9622(l), and punitive damages pursuant to Section 107(c)(3) of CERCLA, 42 U.S.C. § 9607(c)(3). Provided, however, that EPA shall not seek civil penalties pursuant to Section 122(l) of CERCLA or punitive damages pursuant to Section 107(c)(3) of CERCLA for any violation for which a stipulated penalty is provided herein, except in the case of willful violation of this Settlement Agreement or in the event that EPA assumes performance of a portion or all of the Work pursuant to Section XX (Reservation of Rights by EPA), Paragraph 83. Notwithstanding any other provision of this Section, EPA may, in its unreviewable discretion, waive any portion of stipulated penalties that have accrued pursuant to this Settlement Agreement.

XVII. FORCE MAJEURE

74. Respondents agree to perform all requirements of this Settlement Agreement within the time limits established under this Settlement Agreement unless the performance is delayed by a *force majeure*. For purposes of this Settlement Agreement, *force majeure* is defined as any event arising from causes beyond the control of Respondents or of any entity controlled by Respondents, including but not limited to their contractors and subcontractors, which delays or prevents performance of any obligation under this Settlement Agreement despite Respondents' best efforts to fulfill the obligation. *Force majeure* does not include financial inability to complete the Work or increased cost of performance.

75. If any event occurs or has occurred that may delay the performance of any obligation under this Settlement Agreement, whether or not caused by a *force majeure* event, Respondents shall notify EPA orally within two (2) business days of when Respondents first knew that the event might cause a delay. Within five business days thereafter, Respondents shall provide to EPA in writing an explanation and description of the reasons for the delay; the anticipated duration of the delay; all actions taken or to be taken to prevent or minimize the delay; a schedule for implementation of any measures to be taken to prevent or mitigate the delay or the effect of the delay; Respondents' rationale for attributing such delay to a *force majeure* event if they intend to assert such a claim; and a statement as to whether, in the opinion of Respondents, such event may cause or contribute to an endangerment to public health, welfare or the environment. Failure to comply with the above requirements shall preclude Respondents from asserting any claim of *force majeure* for that event for the period of time of such failure to comply and for any additional delay caused by such failure.

76. If EPA agrees that the delay or anticipated delay is attributable to a *force majeure* event, the time for performance of the obligations under this Settlement Agreement that are affected by the *force majeure* event will be extended in writing by EPA for such time as is necessary to complete those obligations, and no stipulated penalties will be assessed for the delay to the extent performance of those obligations is affected by the *force majeure* event. An extension of the time for performance of the obligations affected by the *force majeure* event shall not, of itself, extend the time for performance of any other obligation. If EPA does not agree that the delay or anticipated delay has been or will be caused by a *force majeure* event, EPA will notify Respondents in writing of its decision. If EPA agrees that the delay is attributable to a *force majeure* event, EPA will notify Respondents in writing of the length of the extension, if any, for performance of the obligations affected by the *force majeure* event.

XVIII. PAYMENT OF RESPONSE COSTS

77. Payment of Past Response Costs

a. Within 30 days after the Effective Date of this Settlement Agreement, the Respondent shall pay to EPA \$211,192.30 for Past Response Costs. The total amount of Past Response Costs shall be deposited in the Patrick Bayou Site Special Account within the EPA Hazardous Substances Superfund. The deposit of these costs in the Patrick Bayou Site Special Account shall be retained and used to conduct or finance response actions at or in connection with the Site, or to be transferred by EPA to the EPA Hazardous Substance Superfund.

b. Payment into the Patrick Bayou Site Special Account shall be made to EPA by Electronic Funds Transfer ("EFT") in accordance with EFT instructions to be provided by EPA. The EFT must reference "Hazardous Substances Superfund", the "Patrick Bayou RI/FS Site Special Account, Deer Park, Harris County, Texas", EPA Region 6, Site/Spill ID Number "06JT", and "EPA Docket Number 06-06-05" and payment must be transmitted to:

Mellon Bank
ABA 043000261
Account 9109125
22 Morrow Drive
Pittsburgh, Pennsylvania 15235

c. Respondents shall submit notice of payment including a copy of the EFT transmittal documentation to the EPA RPM and to:

Chief, Superfund Cost Recovery Section (6SF-AC)
U.S. Environmental Protection Agency, Region 6
1445 Ross Avenue
Dallas, Texas 75202-2733

78. Payments for Future Response Costs

a. Respondents shall pay to EPA all Future Response Costs not inconsistent with the NCP. The total amount to be paid by Respondents pursuant to this paragraph shall be deposited in the Patrick Bayou Special Account within the EPA Hazardous Substance Superfund to be retained and used to conduct or finance response actions at or in connection with the Site, or to be transferred by EPA to the EPA Hazardous Substance Superfund. EPA's use of the funds deposited in the Patrick Bayou Site RI/FS Special Account shall not alter in any way Respondents' obligation to pay Future Response Costs pursuant to this Settlement Agreement.

b. On a semi-annual basis the United States will send Respondents, through their designated representative, the Project Coordinator, a bill requiring payment that includes an EPA Integrated Financial Management System ("IFMS") Itemized Cost Summary (Scorpions Report). Respondents shall make all payments within 30 days of Respondents' receipt of each bill. Respondents shall make all payments required by this Paragraph by EFT payable to the Patrick Bayou Site Special Account and should reference "Hazardous Substance Superfund", the "Patrick Bayou Site RI/FS Special Account", EPA Region 6, Site/Spill ID Number "06JT", and "EPA Docket Number 6-07-05" and payment must be transmitted to:

Mellon Bank
ABA 043000261
Account 9109125
22 Morrow Drive
Pittsburgh, Pennsylvania 15235

c. Respondents shall submit notice of payment including a copy of the EFT transmittal documentation to:

Chief, Superfund Cost Recovery Section (6SF-AC)
U.S. Environmental Protection Agency, Region 6
1445 Ross Avenue
Dallas, Texas 75202-2733

d. Respondents may dispute all or part of a bill for Future Response Costs submitted under this Settlement Agreement, if Respondents allege that EPA has made an accounting error, or if Respondents allege that a cost item is inconsistent with the NCP. Respondents shall identify any contested costs and the basis of its objection. If any dispute over costs is resolved before payment is due, the amount due will be adjusted as necessary. If the dispute is not resolved before payment is due, Respondents shall pay the full amount of the uncontested costs to EPA as specified in this Paragraph on or before the due date. Within the same period, Respondents shall pay the full amount of the contested costs into an interest-bearing escrow account. Respondents shall simultaneously transmit a copy of both payments to the persons listed in this Paragraph above. Respondents shall ensure that the prevailing party or parties in the dispute shall receive the amount upon which they prevailed from the escrow funds plus interest within 30 days after the dispute is resolved. The dispute resolution procedures set forth in this Paragraph in conjunction with the procedures set forth in Section XV (Dispute Resolution) shall be the

exclusive mechanisms for resolving disputes regarding Respondents' obligation to reimburse EPA for its Future Response Costs.

e. Neither dispute resolution nor a request to EPA for more detailed information nor a request for a certified cost accounting shall delay the date that the Respondents' payments are due under this paragraph. However, if Respondents request EPA to provide more detailed information or a certified cost accounting, EPA reserves the right, in its discretion, to change its billing to an annual basis.

79. In the event that Respondents do not pay Past Response Costs within 30 days of the Effective Date, or the payments for Future Response Costs are not made within 30 days of Respondent's receipt of a bill, Respondent shall pay Interest on the unpaid balance. The Interest on Past Response Costs shall begin to accrue on the Effective Date of this Settlement Agreement and shall continue to accrue until the date of payment. The Interest on Future Response Costs shall begin to accrue on the date of the bill and shall continue to accrue until the date of payment. Payments of Interest made under this Paragraph shall be in addition to such other remedies or sanctions available to the United States by virtue of Respondents' failure to make timely payments under this Section, including but not limited to, payment of stipulated penalties pursuant to Section XVI.

XIX. COVENANT NOT TO SUE BY EPA

80. In consideration of the actions that will be performed and the payments that will be made by Respondents under the terms of this Settlement Agreement, and except as otherwise specifically provided in this Settlement Agreement, EPA covenants not to sue or to take administrative action against Respondents pursuant to Sections 106 and 107(a) of CERCLA, 42 U.S.C. §§ 9606 and 9607(a), for the Work, Past Response Costs, and Future Response Costs. This covenant not to sue shall take effect upon receipt by EPA of the Past Response Costs due under Section XVIII of this Settlement Agreement and any Interest or Stipulated Penalties due for failure to pay Past Response Costs as required by Sections XVIII and XVI of this Settlement Agreement. This covenant not to sue is conditioned upon the complete and satisfactory performance by Respondents of all obligations under this Settlement Agreement, including, but not limited to, payment of Future Response Costs pursuant to Section XVIII. This covenant not to sue extends only to Respondents and does not extend to any other person.

XX. RESERVATIONS OF RIGHTS BY EPA

81. Except as specifically provided in this Settlement Agreement, nothing herein shall limit the power and authority of EPA or the United States to take, direct, or order all actions necessary to protect public health, welfare, or the environment or to prevent, abate, or minimize an actual or threatened release of hazardous substances, pollutants or contaminants, or hazardous or solid waste on, at, or from the Site. Further, nothing herein shall prevent EPA from seeking legal or equitable relief to enforce the terms of this Settlement Agreement, from taking other legal or equitable action as it deems appropriate and necessary, or from requiring Respondents in the future to perform additional activities pursuant to CERCLA or any other applicable law.

82. The covenant not to sue set forth in Section XIX above does not pertain to any matters other than those expressly identified therein. EPA reserves, and this Settlement Agreement is without prejudice to, all rights against Respondents with respect to all other matters, including, but not limited to:

- a. claims based on a failure by Respondents to meet a requirement of this Settlement Agreement;
- b. liability for costs not included within the definition of Past Response Costs or Future Response Costs;
- c. liability for Interim Costs;
- d. liability for performance of response action other than the Work;
- e. criminal liability;
- f. liability for damages for injury to, destruction of, or loss of natural resources, and for the costs of any natural resource damage assessments;
- g. liability arising from the past, present, or future disposal, release or threat of release of Waste Materials outside of the Site; and
- h. liability for costs incurred or to be incurred by the Agency for Toxic Substances and Disease Registry related to the Site, except to the extent reimbursed under this Settlement Agreement.

83. Work Takeover. In the event EPA determines that Respondents have ceased implementation of any portion of the Work, are seriously or repeatedly deficient or late in their performance of the Work, or are implementing the Work in a manner which may cause an endangerment to human health or the environment, EPA may assume the performance of all or any portion of the Work as EPA determines necessary. Respondents may invoke the procedures set forth in Section XV (Dispute Resolution) to dispute EPA's determination that takeover of the Work is warranted under this Paragraph. Costs incurred by EPA in performing the Work pursuant to this Paragraph shall be considered Future Response Costs that Respondents shall pay pursuant to Section XVIII (Payment of Response Costs). In the event EPA assumes the performance of all or any portion of the Work, EPA shall notify Respondents in writing. Such takeover notification shall identify that all or a specifically designated portion of the Work shall be assumed by EPA. Stipulated penalties for violations of this Settlement Agreement directly relating to the work assumed by EPA shall continue to accrue only until (1) EPA, or another party pursuant to an agreement with or ordered by EPA, commences performance of that Work or (2) if the EPA Work takeover is not delayed by actions of the Respondents, including but not limited to invocation of dispute resolution pursuant to Section XV to prevent the takeover, 30 days from the date of Respondents' receipt of the takeover notice, whichever is less. Notwithstanding any other provision of this Settlement Agreement, EPA retains all authority and reserves all rights to take any and all response actions authorized by law.

XXI. COVENANT NOT TO SUE BY RESPONDENTS

84. Respondents covenant not to sue and agree not to assert any claims or causes of action against the United States, or its contractors or employees, with respect to the Work, Past Response Costs, Future Response Costs, or this Settlement Agreement, including, but not limited to:

a. any direct or indirect claim for reimbursement from the Hazardous Substance Superfund established by 26 U.S.C. § 9507, based on Sections 106(b)(2), 107, 111, 112, or 113 of CERCLA, 42 U.S.C. §§ 9606(b)(2), 9607, 9611, 9612, or 9613, or any other provision of law;

b. any claim arising out of the Work or arising out of the response actions for which the Past Response Costs or Future Response Costs have or will be incurred, including any claim under the United States Constitution, the Tucker Act, 28 U.S.C. § 1491, the Equal Access to Justice Act, 28 U.S.C. § 2412, as amended, or at common law; or

c. any claim against the United States pursuant to Sections 107 and 113 of CERCLA, 42 U.S.C. §§ 9607 and 9613, relating to the Work or payment of Past Response Costs or Future Response Costs.

Notwithstanding subparagraph c above, because this is an interim settlement of less than all of Respondents' liability at the Site, Respondents reserve their right to assert claims, if any, for contribution against the United States under Section 113 of CERCLA solely on the basis of any alleged involvement of agencies or instrumentalities of the United States with the Respondents' facilities during World War II.

85. These covenants not to sue shall not apply in the event the United States brings a cause of action or issues an order pursuant to the reservations set forth in Paragraphs 82 (b), (c), and (e) - (g), but only to the extent that Respondents' claims arise from the same response action, response costs, or damages that the United States is seeking pursuant to the applicable reservation.

86. Nothing in this Agreement shall be deemed to constitute approval or preauthorization of a claim within the meaning of Section 111 of CERCLA, 42 U.S.C. § 9611, or 40 C.F.R. § 300.700(d).

XXII. OTHER CLAIMS

87. By issuance of this Settlement Agreement, the United States and EPA assume no liability for injuries or damages to persons or property resulting from any acts or omissions of Respondents.

88. Except as expressly provided in Section XIX (Covenant Not to Sue by EPA), nothing in this Settlement Agreement constitutes a satisfaction of or release from any claim or cause of action against Respondents or any person not a party to this Settlement Agreement, for any liability such person may have under CERCLA, other statutes, or common law, including but not limited to any claims of the United States for costs, damages and interest under Sections 106 and 107 of CERCLA, 42 U.S.C. §§ 9606 and 9607.

89. No action or decision by EPA pursuant to this Settlement Agreement shall give rise to any right to judicial review except as set forth in Section 113(h) of CERCLA, 42 U.S.C. § 9613(h).

XXIII. CONTRIBUTION

90. a. The Parties agree that this Settlement Agreement constitutes an administrative settlement for purposes of Section 113(f)(2) of CERCLA, 42 U.S.C. § 9613(f)(2), and that Respondents are entitled, as of the Effective Date, to protection from contribution actions or claims as provided by Sections 113(f)(2) and 122(h)(4) of CERCLA, 42 U.S.C. §§ 9613(f)(2)

and 9622(h)(4), for "matters addressed" in this Settlement Agreement. The "matters addressed" in this Settlement Agreement are the Work, Past Response Costs, and Future Response Costs.

b. The Parties agree that this Settlement Agreement constitutes an administrative settlement for purposes of Section 113(f)(3)(B) of CERCLA, 42 U.S.C. § 9613(f)(3)(B), pursuant to which Respondents have, as of the Effective Date, resolved their liability to the United States for the Work, Past Response Costs, and Future Response Costs.

c. Nothing in this Settlement Agreement precludes the United States or Respondents from asserting any claims, causes of action, or demands for indemnification, contribution, or cost recovery against any persons not parties to this Settlement Agreement. Nothing herein diminishes the right of the United States, pursuant to Sections 113(f)(2) and (3) of CERCLA, 42 U.S.C. § 9613(f)(2)-(3), to pursue any such persons to obtain additional response costs or response action and to enter into settlements that give rise to contribution protection pursuant to Section 113(f)(2).

XXIV. INDEMNIFICATION

91. Respondents shall indemnify, save and hold harmless the United States, its officials, agents, contractors, subcontractors, employees and representatives from any and all claims or causes of action arising from, or on account of negligent or other wrongful acts or omissions of Respondents, their officers, directors, employees, agents, contractors, or subcontractors, in carrying out actions pursuant to this Settlement Agreement. In addition, Respondents agree to pay the United States all costs incurred by the United States, including but not limited to attorneys fees and other expenses of litigation and settlement, arising from or on account of claims made against the United States based on negligent or other wrongful acts or omissions of Respondents, their officers, directors, employees, agents, contractors, subcontractors and any persons acting on their behalf or under their control, in carrying out activities pursuant to this Settlement Agreement. The United States shall not be held out as a party to any contract entered into by or on behalf of Respondents in carrying out activities pursuant to this Settlement Agreement. Neither Respondents nor any such contractor shall be considered an agent of the United States.

92. The United States shall give Respondents written notice of any claim for which the United States or other persons plan to seek indemnification pursuant to this Section and shall consult with Respondents prior to settling such claim.

93. Respondents waive all claims against the United States for damages or reimbursement or for set-off of any payments made or to be made to the United States, arising from or on account of any contract, agreement, or arrangement between any one or more of Respondents and any person for performance of Work on or relating to the Site. In addition, Respondents shall indemnify and hold harmless the United States with respect to any and all claims for damages or reimbursement arising from or on account of any contract, agreement, or arrangement between any one or more of Respondents and any person for performance of Work on or relating to the Site.

XXV. INSURANCE

94. Prior to commencing Work under this Settlement Agreement, Respondents shall secure, or ensure that their contractors or subcontractors secure, and maintain for the duration of this Settlement Agreement, comprehensive general liability insurance and automobile insurance

with limits of \$2 million dollars, combined single limit, naming the EPA as an additional insured. Within the same period, Respondents shall provide EPA with certificates of such insurance and a copy of each insurance policy. Respondents shall submit such certificates and copies of policies each year on the anniversary of the Effective Date. In addition, for the duration of the Settlement Agreement, Respondents shall satisfy, or shall ensure that their contractors or subcontractors satisfy, all applicable laws and regulations regarding the provision of worker's compensation insurance for all persons performing the Work on behalf of Respondents in furtherance of this Settlement Agreement. If Respondents demonstrate by evidence satisfactory to EPA that any contractor or subcontractor maintains insurance equivalent to that described above, or insurance covering some or all of the same risks but in an equal or lesser amount, then Respondents need provide only that portion of the insurance described above which is not maintained by such contractor or subcontractor.

XXVI. FINANCIAL ASSURANCE

95. Within 30 days of the Effective Date, Respondents shall establish and maintain financial security for the benefit of EPA, in the amount sufficient to perform the Work and any other obligations under this Settlement Agreement, in one or more of the following forms, in order to secure the full and final completion of Work by Respondents:

a. a surety bond unconditionally guaranteeing payment and/or performance of the Work;

b. one or more irrevocable letters of credit, payable to or at the direction of EPA, issued by financial institution(s) acceptable in all respects to EPA equaling the total estimated cost of the Work;

c. a trust fund administered by a trustee acceptable in all respects to EPA;

d. a policy of insurance issued by an insurance carrier acceptable in all respects to EPA, which ensures the payment and/or performance of the Work;

e. a corporate guarantee to perform the Work provided by one or more parent corporations or subsidiaries of Respondents, or by one or more unrelated corporations that have a substantial business relationship with at least one of Respondents; including a demonstration that any such company satisfies the financial test requirements of 40 C.F.R. Part 264.143(f); and/or

f. a corporate guarantee to perform the Work by one or more of Respondents, including a demonstration that any such Respondent satisfies the requirements of 40 C.F.R. Part 264.143(f).

g. a demonstration that one or more of the Respondents possess sufficient net worth to perform the Work based on Respondents' total estimated cost of the RI/FS as evidenced by an audited financial statement (including Form 10-k).

96. Any and all financial assurance instruments provided pursuant to this Section shall be in one of the above-listed forms and in substance satisfactory to EPA, determined in EPA's sole discretion. In the event that EPA determines at any time that the financial assurances provided pursuant to this Section (including, without limitation, the instrument(s) evidencing such assurances) are inadequate, Respondents shall, within 30 days of receipt of notice of EPA's determination, obtain and present to EPA for approval one of the other forms of financial assurance listed in Paragraph 95, above. In addition, if at any time EPA notifies Respondents

that the anticipated cost of completing the Work has increased, then, within 30 days of such notification, Respondents shall obtain and present to EPA for approval a revised form of financial assurance (otherwise acceptable under this Section) that reflects such cost increase. Respondents' inability to demonstrate financial ability to complete the Work shall in no way excuse performance of any activities required under this Settlement Agreement.

97. If Respondents seek to ensure completion of the Work through a guarantee pursuant to Subparagraph 95.e. or 95.f. of this Settlement Agreement, Respondents shall (i) demonstrate to EPA's satisfaction that the guarantor satisfies the requirements of 40 C.F.R. Part 264.143(f); and (ii) resubmit sworn statements conveying the information required by 40 C.F.R. Part 264.143(f) annually, on the anniversary of the Effective Date, to EPA. For the purposes of this Settlement Agreement, wherever 40 C.F.R. Part 264.143(f) references "sum of current closure and post-closure costs estimates and the current plugging and abandonment costs estimates," the current cost estimate of \$1 million for the Work at the Site shall be used in relevant financial test calculations.

98. If, after the Effective Date, Respondents can show that the estimated cost to complete the remaining Work has diminished below the amount set forth in Paragraph 97 of this Section, Respondents may, on any anniversary date of the Effective Date, or at any other time agreed to by the Parties, reduce the amount of the financial security provided under this Section to the estimated cost of the remaining Work to be performed. Respondents shall submit a proposal for such reduction to EPA, in accordance with the requirements of this Section, and may reduce the amount of the security after receiving written approval from EPA. In the event of a dispute, Respondents may seek dispute resolution pursuant to Section XV (Dispute Resolution). Respondents may reduce the amount of security in accordance with EPA's written decision resolving the dispute.

99. Respondents may change the form of financial assurance provided under this Section at any time, upon notice to and prior written approval by EPA, provided that EPA determines that the new form of assurance meets the requirements of this Section. In the event of a dispute, Respondents may change the form of the financial assurance only in accordance with the written decision resolving the dispute.

XXVII. INTEGRATION/APPENDICES

100 This Settlement Agreement and its appendices and any deliverables, technical memoranda, specifications, schedules, documents, plans, reports (other than progress reports), etc. that will be developed pursuant to this Settlement Agreement and become incorporated into and enforceable under this Settlement Agreement constitute the final, complete and exclusive agreement and understanding among the Parties with respect to the settlement embodied in this Settlement Agreement. The parties acknowledge that there are no representations, agreements or understandings relating to the settlement other than those expressly contained in this Settlement Agreement. The following appendix is attached to and incorporated into this Settlement Agreement: "Appendix A" is the SOW.

XXVIII. ADMINISTRATIVE RECORD

101. EPA will determine the contents of the administrative record file for selection of the remedial action. Respondents shall submit to EPA documents developed during the course of the RI/FS upon which selection of the response action may be based. Upon request of EPA, Respondents shall provide copies of plans, task memoranda for further action, quality assurance

memoranda and audits, raw data, field notes, laboratory analytical reports and other reports. Upon request of EPA, Respondents shall additionally submit any previous studies conducted under state, local or other federal authorities relating to selection of the response action, and all communications between Respondents and state, local or other federal authorities concerning selection of the response action. At EPA's discretion, Respondents shall establish a community information repository at or near the Site, to house one copy of the administrative record. EPA retains the responsibility for the release to the public of the RI/FS report. EPA retains responsibility for the preparation and release to the public of the proposed plan and record of decision in accordance with CERCLA and the NCP.

XXIX. EFFECTIVE DATE AND SUBSEQUENT MODIFICATION

102. The effective date of this Settlement Agreement shall be the date it is signed by EPA, with the exception of Paragraph 77 of Section XVIII, which shall be effective when EPA issues notice to Respondents pursuant to Paragraph 103 that public comments received, if any, do not require EPA to modify or withdraw from Paragraph 77 of Section XVIII of this Order. For time periods in this Settlement Agreement that begin on "the Effective Date" of the Settlement Agreement, if the Respondents' Project Coordinator does not receive notice of EPA's signing of the Settlement Agreement within two days of EPA signature, the EPA will grant a proportionate time extension for complying with any requirements that are initiated by the Effective Date of the Settlement Agreement.

103. Final acceptance by EPA of Paragraph 77 of Section XVIII (Payment of Response Costs) of this Order shall be subject to Section 122(i) of CERCLA, 42 U.S.C. § 9622(i), which requires EPA to publish notice of the proposed settlement in the Federal Register, to provide persons who are not parties to the proposed settlement an opportunity to comment, solely, on the cost recovery component of the settlement, and to consider comments filed in determining whether to consent to the proposed settlement. EPA may withhold consent from, or seek to modify, all or part of Paragraph 77 of this Order if comments received disclose facts or considerations that indicate that Paragraph 77 of this Order is inappropriate, improper or inadequate. Otherwise, Paragraph 77 shall become effective when EPA issues notice to Respondents that public comments received, if any, do not require EPA to modify or withdraw from Paragraph 77 of this Order.

104. This Settlement Agreement may be amended by mutual agreement of EPA and Respondents. Amendments shall be in writing and shall be effective when signed by EPA. EPA Project Coordinators do not have the authority to sign amendments to the Settlement Agreement.

105. No informal advice, guidance, suggestion, or comment by the EPA Project Coordinator or other EPA representatives regarding reports, plans, specifications, schedules, or any other writing submitted by Respondents shall relieve Respondents of their obligation to obtain any formal approval required by this Settlement Agreement, or to comply with all requirements of this Settlement Agreement, unless it is formally modified.

XXX. NOTICE OF COMPLETION OF WORK

106. When EPA determines that all Work has been fully performed in accordance with this Settlement Agreement, with the exception of any continuing obligations required by this Settlement Agreement, including record retention, EPA will provide written notice to Respondents. If EPA determines that any such Work has not been completed in accordance with this Settlement Agreement, EPA will notify Respondents, provide a list of the deficiencies, and require that Respondents modify the RI/FS Work Plan if appropriate in order to correct such deficiencies, in accordance with Paragraph 35 (Modification of the Work Plan). Failure by Respondents to implement the approved modified RI/FS Work Plan shall be a violation of this Settlement Agreement.

BY: Samela Phillips, Acting DATE: 1/31/06
Samuel Coleman, P.E.
Director
Superfund Division

**ADMINISTRATIVE SETTLEMENT AGREEMENT AND ORDER ON CONSENT
FOR REMEDIAL INVESTIGATION/FEASIBILITY STUDY
U.S. EPA Region 6 Docket No. CERCLA 6-07-05**

BY: 

Title Global Divestments Manager

DATE: 1-04-06

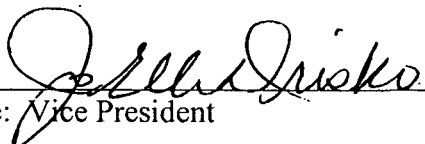
FOR: Shell Chemical LP

**ADMINISTRATIVE SETTLEMENT AGREEMENT AND ORDER ON CONSENT
FOR REMEDIAL INVESTIGATION/FEASIBILITY STUDY
U.S. EPA Region 6 Docket No. CERCLA 6-07-05**

BY:  DATE: 1/8/06
Title CEO & President, Deer Park Refining Limited Partnership

FOR: Shell Oil Company
General Partner, on behalf of the Deer Park Refining Limited Partnership

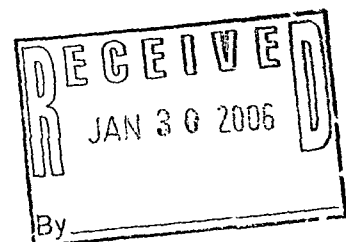
**ADMINISTRATIVE SETTLEMENT AGREEMENT AND ORDER ON CONSENT
FOR REMEDIAL INVESTIGATION/FEASIBILITY STUDY
U.S. EPA Region 6 Docket No. CERCLA 6-07-05**

BY:  DATE: January 6, 2006
Title: Vice President

FOR: Occidental Chemical Corporation (Respondent)

ADMINISTRATIVE SETTLEMENT AGREEMENT AND ORDER ON CONSENT
FOR REMEDIAL INVESTIGATION/FEASIBILITY STUDY
U.S. EPA Region 6 Docket No. CERCLA 6-07-05

BY: Larry Norwood DATE: 1/20/2006
Title VP Operations Lubrizol ADDITIVES
FOR: The Lubrizol Corporation (Respondent)

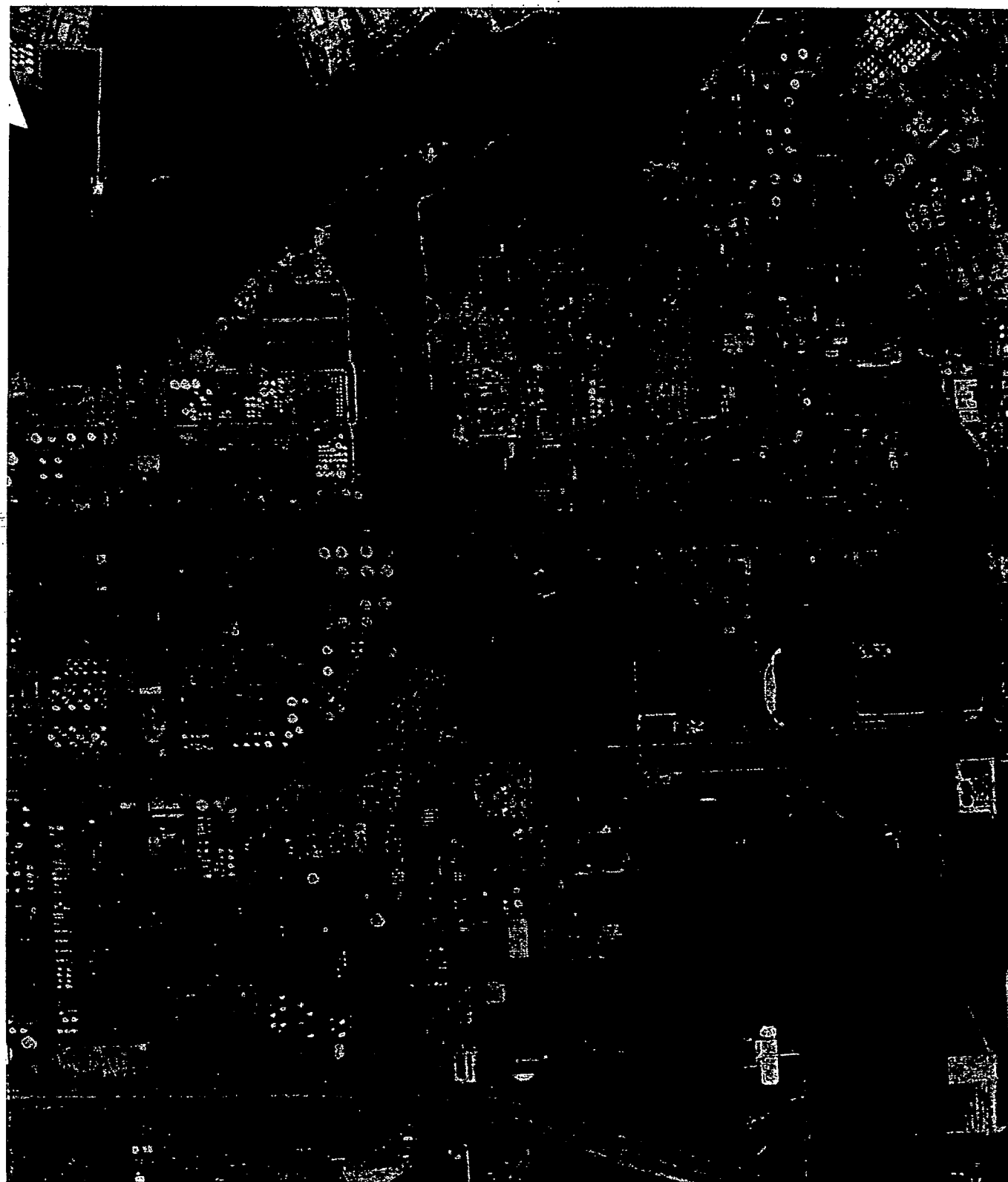


CERTIFICATE OF SERVICE

I hereby certify that a true and correct copy of the Administrative Order on Consent, Docket No. CERCLA 6-07-05 , was served by Federal Express on the 31st day of January, 2006, to Mr. Robert Piniewski, Project Coordinator, de maximis, inc. 2203 Timberloch, Suite 213, The Woodlands, TX 77380.



Anne Foster
Assistant Regional Counsel
Environmental Protection Agency
Region 6



Patrick Bayou Extent



0 1500
Approximate Scale in Feet

ATTACHMENT A
STATEMENT OF WORK
FOR REMEDIAL INVESTIGATION/FEASIBILITY STUDY (RI/FS)
PATRICK BAYOU

INTRODUCTION AND PURPOSE

This Statement of Work (SOW) sets forth requirements of the Administrative Order on Consent (the "Order") for implementation of work, including the development of a remedial investigation and feasibility study (RI/FS) at the Patrick Bayou Superfund Site (the "Site"). The Site shall mean the Patrick Bayou Superfund Site located in Harris County, Texas as described in the Administrative Order on Consent into which this SOW is incorporated. The Patrick Bayou site was finalized on the National Priorities List on September 5, 2002 (67 FR 56747).

For purposes of conducting the RI/FS at the Site, the term hazardous substances, pollutants, or contaminants shall be defined as they are in CERCLA Sections 101(14) and 101(33). The contamination found at the Site, as identified in the EPA's Findings of Fact above, includes "hazardous substances" as defined in Section 101(14) of CERCLA, 42 U.S.C. 9601(14), or constitute "any pollutant or contaminant" that may present an imminent and substantial danger to public health or welfare under section 104(a)(1) of CERCLA.

The objective of the RI is to assess Site conditions and to collect data necessary to adequately characterize the Site for the purpose of developing and evaluating effective remedial alternatives that are protective of human health and the environment. Pursuant to this objective, the RI report shall assess the risk that these hazardous substances, pollutants or contaminant present for human health and the environment. The primary objective of the FS is to ensure that appropriate remedial alternatives are developed and evaluated such that relevant information concerning the remedial action options can be presented to a decision-maker and an appropriate remedy selected. The FS shall evaluate alternatives for addressing the impact to human health and the environment from the contamination at the Site. Interim response actions protective of human health and the environment and those that may contribute to the effectiveness of a remedial action may also be considered and implemented. A Baseline Risk Assessment is developed to identify the existing or potential risks that may be posed to human health and the environment by the site. This assessment also serves to support the evaluation of potential remedial alternatives by documenting the threats posed by the site based on expected exposure scenarios. Because this assessment identifies the primary health and environmental threats at the site, it also provides valuable input to the development and evaluation of alternatives during the FS.

The schedule for the preparation of the initial deliverables (see SOW deliverables schedule in Section VII) through the RI/FS Work Plan are specified. The RI/FS Work Plan will include a schedule for all subsequent activities and deliverables, with the schedule subject to EPA approval in the review process. The agreed schedule may be lengthened or shortened, with EPA approval, based on progress of the work and issues arising during the RI/FS process.

The Respondents shall conduct the RI/FS and prepare and complete the RI/FS Reports in compliance with all requirements and shall be consistent with the publicly available guidance for a RI/FS and with the Administrative Order on Consent (AOC), this SOW, the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), as amended by the Superfund Amendments and Authorization Act (SARA), the National Oil and Hazardous Substances Pollution Contingency Plan (NCP), 40 C.F.R. Part 300, *Contaminated Sediment Remediation Guidance Document for Hazardous Waste Sites* and other guidance that the United States Environmental Protection Agency (U.S. EPA) uses in conducting or submitting deliverables for a RI/FS. (A list of the primary guidance documents is attached).

The Respondents shall furnish all personnel, materials, and services necessary for, or incidental to, performing the RI/FS. In order to develop the scope of the RI Work Plan, the Respondents shall evaluate existing data as further described under Task 1 of the Work to be Performed section of this SOW. After completion of Task 1, the remaining scope of work will be developed in the Patrick Bayou RI/FS Work Plan.

EPA will be responsible for the selection and approval of a site remedy and will document this selection in a Record of Decision (ROD). The remedial action alternative selected by EPA will meet the cleanup standards specified in CERCLA Section 121, 42 U.S.C. §9621. That is, the selected remedial action will be protective of human health and the environment, will be in compliance with, or include a waiver of, applicable or relevant and appropriate requirements of other laws, will be cost-effective, will utilize permanent solutions and alternative treatment technologies or resource recovery technologies to the maximum extent practicable, and will address the statutory preference for treatment as a principal element. The final RI Report, final FS Report and risk assessments will, with the administrative record, form the basis for the selection of the Site remedy and will provide the information necessary to support the development of the ROD.

As specified in CERCLA Section 104(a) (1), as amended by SARA, EPA will provide oversight of Respondents' activities throughout the RI/FS. The Respondents will support U.S. EPA's activities related to the implementation of oversight. Throughout this SOW "receipt of U.S. EPA comments" means receipt of written, e-mailed, or faxed U.S. EPA comments.

WORK TO BE PERFORMED

The Remedial Investigation/Feasibility Study (RI/FS) consists of the following tasks:

Task 1: Scoping

- A. Information Collection
- B. Develop a Conceptual Site Model
- C. Develop Preliminary Remedial Action Objectives and Alternatives
- D. Identify Data Needs
- E. Develop Preliminary List of ARARs

- F. Completion of Project Database
- G. Preliminary FS Planning Tasks
- H. Preliminary Site Characterization Report

Task 2: RI/FS Work Plan

- A. Project Management Plan
- B. Sampling and Analysis Plan
- C. Data Management Plan
- D. Health and Safety Plan
- E. Community Relations Plan
- F. Preliminary Site Characterization Report

Task 3: Remedial Investigation

- A. Environmental Setting
- B. Source Characterization
- C. Contamination Characterization
- D. Data Analysis
- E. RI Report

Task 4: Human Health and Ecological Risk Assessment

- A. Human Health Risk Assessment
- B. Ecological Risk Assessment

Task 5: Treatability Studies

- A. Identification of Candidate Technologies
- B. Implementation of Treatability Studies

Task 6: Development and Screening of Alternatives

- A. Remedial Action Objectives
- B. Response Actions
- C. Remedial Technologies
- D. ARAR Analysis
- E. Remedial Alternatives

Task 7: Detailed Analysis of Remedial Alternatives

- A. Analysis of Alternatives
- B. Comparative Analysis
- C. Draft and Final Feasibility Study Report

TASK I: SCOPING

Scoping is the initial planning phase of the RI/FS process and will begin on the effective date of the Order. The Patrick Bayou site is somewhat unique in that considerable site characterization information has already been collected under other regulatory programs. EPA recognizes that it is in the best interest of the agency and the Respondents to thoroughly compile and analyze the existing extensive information base prior to the design of any supplemental data collection efforts. Given the extent of past studies, EPA may determine that it is possible to focus data collection on engineering evaluations specific to a viable subset of remedies. Such a focus, if possible, would serve to accelerate identification and implementation of remedial efforts. Therefore, the AOC and this SOW includes a plan for development of a thorough database and comprehensive evaluation of the data prior to development of an RI Work Plan.

Following completion of Task 1 under this SOW, an RI/FS Work Plan will be developed. The RI/FS Work Plan will describe the remaining work that needs to be conducted at the site to complete the purpose of the RI/FS. This approach should ensure that all available data is evaluated and utilized so that the RI/FS process might be expedited, and that work is not unnecessarily duplicated. The data analysis will be the basis for design of the RI/FS data collection effort and eventual implementation of any selected remedial action. If the remedial investigation reveals contamination in specific, identifiable areas of concern that may present an imminent and substantial endangerment to human health or the environment, the Respondents may propose or U.S. EPA may require an interim response action to address the threat identified. The Respondents may propose, subject to U.S. EPA review, comment and approval, with modifications if necessary, interim response actions that, if implemented, will protect human health and the environment and may contribute to the effectiveness of the remedial action eventually selected for this Site.

The AOC recognizes that EPA may determine that any additional work at the site may be conducted as an Engineering Evaluation/Cost Analysis (EE/CA). U.S. EPA may determine that a time critical or non-time critical removal is appropriate to eliminate an imminent and substantial threat to human health or the environment. If approved by U.S. EPA, the Respondents may perform the removal action. The Respondents must follow all applicable guidance pertaining to removal actions. The schedule of the RI/FS will be modified in consequence of the performance of any removal actions. The Respondents shall submit an updated schedule for the remaining RI/FS activities for U.S. EPA approval.

Either course of action will produce the basis for Agency preparation of a Record of Decision, in accordance with CERCLA and the EPA's guidance. Regardless of the course taken to evaluate the site, the Respondents are responsible for the development of an RI, FS, Human Health Risk Assessment, and Ecological Risk Assessment to support the final Record of Decision. The scope of efforts to conduct and document the RI, FS, Human Health Risk Assessment, and Ecological Risk Assessment will be presented in the RI/FS Work Plan.

The tasks identified below shall be utilized to complete the Scoping.

Scoping will begin on the effective date of the Order and end upon completion and approval of all scoping documents and deliverables, as specified below and in the List of Deliverables and Schedule provided in Section VII. During this phase, Respondents must perform the work described in this Section, including the following tasks:

- A. Information Collection: Existing information is collected and reviewed. In compiling the data, Respondents must make a diligent effort to exhaust all of the data and information sources in Table 2-1 (Data Collection Information Sources) of the RI/FS Guidance. Respondents must establish data quality objectives (DQOs), subject to EPA approval, for evaluating the usefulness of existing data. Respondents will use data that has been compiled and reviewed to describe additional data needed to characterize the Site; to better define potential ARARs; and to develop a range of preliminarily identified remedial alternatives. This information will be submitted as part of the Preliminary Site Characterization Report.
- B. Develop a Conceptual Site Model. Respondents must use existing data to develop a preliminary conceptual Site model, as described in the RI/FS Guidance at Section 2.2.2.2 and Figure 2-2 (see RI/FS Guidance Appendix B, and relevant to risk assessment). This model must include:
1. known and suspected sources of contaminants, and all affected media (ground water, soil, surface water, sediments, and air);
 2. known and potential routes of migration of contaminants, and all affected media (ground water, soil, surface water, sediments, and air); and
 3. Known and potential human and environmental receptors of contaminants.

This information will be submitted as the Preliminary Site Characterization Report. The purpose and use of the Conceptual Site Model are described further under the Project Management Plan, below.

- C. Develop Preliminary Remedial Action Objectives and Alternatives. Once existing site information has been analyzed and a conceptual understanding of the site is obtained, the Respondents will identify potential remedial action objectives for each contaminated medium and a preliminary range of remedial action alternatives and associated technologies. The preliminary remedial action objectives and range of remedial action alternatives will be documented in the Preliminary Site Characterization Report and is subject to EPA approval. The identification of potential technologies at this stage will help ensure that data needed to evaluate them can be collected as early as possible. In addition, the early identification of technologies will allow earlier determinations as to the need for treatability studies. The range of potential alternatives should encompass where appropriate, alternatives in which treatment significantly reduces the toxicity, mobility, or volume of the waste; alternatives that involve containment with little or no treatment; and a no-action alternative.

The remedial action objectives shall include remedial action objectives for engineering controls as well as for institutional controls. This information is to be submitted as part of the Preliminary Site Characterization Report. The report also will include an evaluation of similar sites and settings and their selected remedial technologies, assessment of remedial technology utility, ecological benefits and impact associated with the remedy. This assessment will also consider other possible alternatives to address the conditions at the Site, and evaluate the applicability of those remedies to the Site using information, data and experience collected during the scoping activities. The report will help focus the planning for the Site, the RI/FS Work Plan, any future removal activities, the field investigation, and subsequent deliverables to a few remedies best suited for the particular setting and contaminants at this Site while meeting the need to evaluate both containment and treatment remedies as required by 40 CFR 300.430(e)(3).

- D. Identify Data Needs. Respondents will evaluate existing data to determine whether more data must be obtained in order to define source areas of hazardous material contamination, to define the potential pathways of hazardous materials migration, and to identify any potential human or environmental hazardous materials receptors to the extent necessary to: (i) show whether or to what extent a threat to human health or the environment exists; and (ii) develop and evaluate remedial action alternatives (including the no-action alternative). Sensitivity analyses may be useful in evaluating the acceptable level of uncertainty in data. Critical parameters in any of the use categories can be varied over a probable range of values that were identified in the conceptual site model and that determine the effect on meeting the RI/FS objective. This evaluation will be submitted with the RI/FS Work Plan.
- D. Develop Preliminary List of ARARs. Respondents must conduct a preliminary identification of potential state and federal ARARs (chemical-specific, location-specific and action-specific; EPA540-R-98-020) and to be considered (TBC) advisories, criteria or guidance, as defined in 40 C.F.R. § 300.400(g), to assist in the refinement of remedial action objectives and the initial identification of remedial alternatives and ARARs associated with particular actions (submitted with RI/FS Work Plan, see RI/FS Guidance Appendix B). ARAR and TBC identification will continue as site conditions, contaminants, and remedial action alternatives are better defined. This information will be submitted with the Preliminary Site Characterization Report.
- E. Completion of Project Data Base: This task will be conducted in parallel with task A to finalization of task D. A database suitable for use by all parties to this agreement will be completed. The database will include all readily available and pertinent sediment, stormwater, groundwater, surface water, benthic, toxicity effects based testing, and NPDES data. The database will include qualifiers that include remarks regarding data reliability and usability. The database will be GIS useable. The GIS developed by any party to this agreement for this project will be made available upon request to the parties.

- F. Preliminary FS Planning Tasks: This task will include preparation of the RAO technical memorandum, evaluation of potential disposal facilities and sources for capping materials, and an assessment of the data needed to evaluate natural attenuation options.
- G. Preliminary Site Characterization Report: Respondents shall submit the draft Preliminary Site Characterization Report (PSCR) 90 days following EPA approval of the AOC and SOW. The final PSCR will be submitted as part of the RI/FS Work Plan. The draft PSCR will include the following information:
- Evaluation of Existing Information
 - Preliminary Conceptual Site Model
 - Identification of Potential Technologies
 - Identification of RI/FS Data Needs
 - Preliminary List of ARARs and TBCs
 - Preliminary Remedial Action Objectives
 - Project Database

TASK II: RI/FS WORK PLAN

Within 150 days following submission of the Preliminary Site Characterization Report under Task 1, Respondents shall develop and submit for EPA review and approval, and RI/FS Work Plan. This Plan must include a comprehensive description of the Work to be performed, including the methodologies to be utilized, plans and schedules for Respondents' completion of the Work described in this SOW, and schedules for subsequent deliverables.

In order to collect sufficient and appropriate data such that informed decisions can be made as to 1) the level of risk presented by contaminants at the site and 2) the appropriate types(s) of remedial response(s), the Respondents shall develop the RI work plans using the Data Quality Objectives (DQO) Process (EPA 1993). The intended uses of the data shall be specified in the Work Plan to ensure that all necessary data will be collected, and that only necessary data will be collected. As with any plan prepared for sampling environmental media, it may be necessary to revise the work plans to accommodate field conditions and site-specific situations.

Upon approval of the RI/FS Work Plan by EPA, Respondents must complete the work described in the RI/FS Work Plan, including the development of an RI/FS Report according to the EPA-approved plans and schedules in the RI/FS Work Plan. In view of the unknown Site conditions, activities are often iterative, and to satisfy the objectives of the RI/FS, EPA may require Respondents to supplement the work specified in the initial RI/FS Work Plan consistent with approved or modified DQOs.

The RI/FS work plan will include a detailed description of the work to be performed under each section of this SOW, information needed for the screening and the baseline risk assessments, information to be produced during and at the conclusion of the work required by each section, and a description of the work products that will be submitted to EPA. These products include the

deliverables set forth in the remainder of this statement of work; a schedule for each of the required activities that is consistent with the RI/FS guidance; and monthly reports to EPA and meetings and presentations to EPA at the conclusion of each major phase of the RI/FS. Appendix B of the RI/FS Guidance contains a comprehensive description of the required contents of the work plan. Additional data requirements and analyses may be identified throughout the process. Whenever such requirements are identified, Respondents will meet with the RPM to discuss the need for additional data, and to identify the DQOs. The result of this meeting, including any recommendations made by EPA, will be documented in the next regularly scheduled monthly progress report as a memo and incorporated into the ongoing work. In any event, Respondents are responsible for fulfilling additional data and analysis needs identified by EPA consistent with the general scope and objectives of this RI/FS and with agreed upon DQOs.

The RI/FS Work Plan also shall include the following that may be submitted separately or as one document:

A. Project Management Plan

The Respondents shall prepare a Project Management Plan (PMP), which will include a discussion of the technical approach, schedules (e.g., identification of key activities, deliverable dates, etc.), and personnel. The technical approach may include, with EPA approval, the evaluation of a Phased Remedial Investigation, an Engineering Evaluation/Cost Analysis, or Focused Feasibility Study. The technical approach shall include the prioritization and rationale necessary to investigate all relevant media (soil, groundwater, surface water, biota, sediments, and air) pursuant to the established DQOs. A Conceptual Site Model (CSM) shall be included as part of the PMP for EPA approval. The initial Conceptual Site Model will be revised and refined as new information is obtained. The intent of the CSM is to identify locations for early action and to provide input into the RI Work Plans. The preliminary CSM will describe possible sources, possible exposure pathways, and potential human and environmental receptors to facilitate assessment of possible impacts on these receptors. Specifically, the CSM will be used to 1) identify critical data needs that will be targeted during the Remedial Investigation; 2) identify exposure pathways or contaminants for which the data are useable (in terms of quality and quantity) to quantify exposures and assess risk; 3) identify locations or pathways which may need to be addressed on an accelerated basis; 4) develop a preliminary list of contaminants of concern; and 5) identify human health and ecological assessment and measurement endpoints. The Project Management Plan will also include a description of qualifications of key supervisory and management personnel performing or directing the RI, including contractor personnel. Finally, the Plan shall document the overall management approach to the RI.

B. Sampling and Analysis Plan

Respondents must develop and submit, for EPA review and approval, a written sampling and analysis plan (SAP). The SAP must be designed in a manner that ensures that sample collection and analytical activities are conducted in accordance with technically acceptable protocols as determined by EPA, and that the data meet DQOs. The SAP provides a mechanism for planning field activities and must include a field sampling plan (FSP) and a quality assurance project plan (QAPP).

The FSP shall define in detail the sampling and data gathering methods that will be used for the project to define the nature and extent of contamination and ecological risk assessment-related studies. It shall include, but not be limited to, sampling objectives, sample location and frequency, sampling equipment and procedures, and sample handling and analysis. The human health and ecological risk assessments require that the sampling be conducted to demonstrate that data is both statistically valid and statistically representative of the Site for current and future site land use. The Respondents shall also confirm that the detection limits for all laboratories are in accordance within the goals stated in the EPA's risk assessment guidance. The FSP shall consider the use of all existing data and shall justify the need for additional data whenever existing data will meet the same objective. The FSP shall be written so that a field sampling team unfamiliar with the Site would be able to gather the samples and field information required. The Respondents shall refer to EPA's guidance document titled "Interim Final Guidance for Conducting Remedial Investigations and Feasibility Studies under CERCLA" (EPA 1988b) which describes the RI/FS FSP format and the required content.

The QAPP shall describe the project objectives and organization, functional activities, and quality assurance and quality control (QA/QC) protocols that will be used to achieve the desired DQOs. The DQOs shall at a minimum reflect use of analytical methods for identifying contamination and remediating contamination consistent with the levels for remedial action objectives identified in the NCP. In addition, the RI/FS QAPP shall address sampling procedures; sample custody; analytical procedures; data reduction, validation, and reporting; and personnel qualifications. The Respondents shall refer to EPA's guidance document titled "EPA QA/R-5" (EPA 2001) which describes the RI/FS QAPP format and the required content.

The Respondents shall demonstrate in advance, to the EPA's satisfaction, that each analytical laboratory it may use is qualified to conduct the proposed Work. This includes use of methods and analytical protocols for the chemicals of concern in the media of interest within detection and quantification limits consistent with both QA/QC procedures and the DQOs approved in the RI/FS QAPP for the Site by the EPA. The laboratory must have, and follow, an approved QA program. If a laboratory not in the Contract Laboratory Program (CLP) is selected, methods consistent with CLP methods shall be used where appropriate. Any methods not consistent with CLP methods shall be approved by EPA prior to their use. Furthermore, if a laboratory not in the CLP program is selected, a

laboratory QA program must be submitted to the EPA for review and approval. The EPA may require the Respondents to submit detailed information to demonstrate that the laboratory is qualified to conduct the Work, including information on personnel and qualifications, equipment, and material specifications.

If during implementation of the field work required under this Consent Order Respondent identifies a technical improvement in investigative procedures, Respondent shall complete and submit to EPA a Workplan Refinement Notice. The Workplan Refinement Notice shall provide a description of the proposed refinement, a rationale for use of such refinement, a discussion of technical merit, any potential or actual impact on project schedule or costs, and impacts on other approved plans. EPA shall indicate approval by signing and dating the signed Workplan Refinement Notice submitted to EPA.

Respondents shall not conduct any activity incorporating a change proposed by Workplan Refinement Notice until such notice is approved by the EPA Project Coordinator.

C. Data Management Plan

The Respondents shall develop and initiate a Data Management Plan to document the quality and validity of field and laboratory data compiled during the RI. This plan shall describe the data security system for the RI. This system will describe the measures to be taken in the field to safeguard chain-of-custody records and prevent free access to project records. All data compiled will be electronically submitted to EPA in an Access compatible format.

D. Health and Safety Plans

The Respondents shall prepare Health and Safety Plans for the field activities required to conduct the Remedial Investigation. EPA does not approve or disapprove the health and safety plan, but does review it to ensure that all necessary elements are included, and that it provides for the protection of human health and the environment. This plan must be prepared in accordance with all applicable EPA guidance, and must comply with all applicable Occupational Safety and Health Administration (OSHA) regulations. Respondents must incorporate all changes to the plan recommended by EPA. Compliance with the Site Health and Safety Plan is a requirement of the Order.

E. Community Relations Plan

The development and implementation of community relations activities, including conducting community interviews and developing a community relations plan, are the responsibility of EPA. As requested by EPA, Respondents shall provide information supporting EPA's community relations plan and shall participate in the preparation of such information for dissemination to the public and in public meetings which may be held or sponsored by EPA to explain activities at or concerning the site. Although EPA will have the ultimate responsibility for community relations, the Respondents and EPA will cooperate to conduct community relations activities. The Respondents in

cooperation with EPA will prepare fact sheets on a regular basis that inform the public about activities related to the investigation, testing, risks, measures to be taken to protect the community and other topics as required by the EPA Project Manager.

F. Preliminary Site Characterization Report

The final version of the Preliminary Site Characterization Report will be included with the RI/FS Work Plan.

TASK III: REMEDIAL INVESTIGATION

The Remedial Investigation shall be implemented in accordance with the RI/FS Work Plan that was developed pursuant to the DQO process and other factors as described in Task II as approved by EPA. The Respondent shall conduct the Remedial Investigation to: characterize the site (Environmental Setting); define the sources to sediment and potential sediment contamination and associated pathways (Source Characterization); define the nature and extent of contamination (Contamination Characterization); as necessary to perform the Feasibility Study; and identify actual and potential receptors. The investigations shall result in data of adequate coverage and technical quality to support the development and evaluation of the remedial alternative or alternatives during the Feasibility Study. The results of the RI shall be presented in a Remedial Investigation Report.

The remedial investigation activities shall follow the plans set forth in Task II. All sampling and analyses shall be conducted in accordance with the Sampling and Analysis Plan. All sampling locations shall be documented in a log and identified on a detailed site map. Respondents will consistently document the quality and validity of field and laboratory data compiled during the RI. Field logs will be maintained by the Respondents and will contain all field measurements and observations as directly recorded in the field.

The Respondents will maintain field reports, sample shipment records, analytical results, and QA/QC reports to ensure that only validated analytical data are reported and utilized in the development and evaluation of remedial alternatives. Analytical results developed under the work plan may not be included in any site characterization report unless accompanied by or cross-referenced to the corresponding QA/QC report.

A. Environmental Setting

Respondents must collect data on the physical characteristics of the site and its surrounding areas, in order to define potential transport pathways and human and ecological receptor populations. Respondents must obtain sufficient engineering data for the projection of contaminant fate and transport, and development and screening of remedial action alternatives, including information to assess treatment technologies. Background studies for all media may be conducted to ensure an accurate, quantitative human health and ecological risk assessment. The investigation must include, but is not limited to, collection of data on the following features at and near the Site:

- General Setting
- Geology;
- Soils;
- Surface water and sediment;
- Hydrogeology;
- Meteorology;
- Human populations and land use; and
- Biota

B. Source Characterization

Respondents must collect data describing the location and release characteristics into the Site for all known sources of contamination on and adjacent the Site. The physical characteristics and chemical constituents and their concentrations must be determined for all known and discovered sources of contamination. Respondents must conduct sufficient sampling to define within the Site as defined in the AOC, the boundaries of the contaminant sources to the level established in the QA/QC plan and DQOs. Respondents must consider all impacts to the Bayou from potential sources of contamination on and adjacent to the Site. This includes drums, tanks, surface impoundments, landfills, and media (ground water, soil, surface water, sediments, and air). Data to be collected includes the following:

- Site characteristics that help to identify the location of the source of the contamination;
- Source characteristics, including the types and quantities of contaminants that may be contained in the source or released to the environment;
- The physical or chemical characteristics of contaminants present in the source.
- Migration and dispersal characteristics of the hazardous substance(s); and,
- Chemical and physical nature of the source material in sediments and biota.

C. Contamination Characterization

The Respondents shall collect analytical data on contamination within the Site in all media at the Site, pursuant to the DQO process and other factors as described in Task II. This may require additional information gathering such as, but not limited to, air, soil, groundwater, biota, surface water, and sediment sampling, and monitoring well installations. These data shall be sufficient to define the extent, origin, direction, and rate of movement of contaminants. Data shall include time and location of sampling, media sampled, concentrations found, and conditions during sampling, and the identity of the individuals performing the sampling and analysis.

D. Data Analysis

Analyses of the data collected should focus on the refinement of the conceptual site model by presenting and analyzing data on source characteristics, the nature and extent of contamination as necessary to assess risk and effectiveness of remedial measures, the contaminated transport pathways and fate, and the effects on human health and the environment. Data collection and analysis for the site characterization is complete when the DQOs that were developed during scoping (including any revisions during the RI) are met, when the need (or lack thereof) for remedial actions is documented, and when the data necessary for the development and evaluation of remedial alternatives have been obtained. The results of the RI typically are presented as an analysis of site characteristics and the risk associated with such characteristics (i.e., the baseline risk assessment).

E. RI Report

The Respondents shall prepare and submit a Remedial Investigation (RI) Report. The Respondents shall refer to the EPA's guidance document titled "Interim Final Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA" (EPA 1988b) and shall include information identified in Table 3-13 (Suggested RI Report Format) for the RI Report format and the required content. The Respondent shall submit a Draft RI Report to the EPA for review and approval according to the project schedule in the Final RI/FS Work Plan. The Respondent shall submit an Amended Draft RI Report within thirty (30) calendar days of the receipt of the EPA's comments. The Respondent shall submit a Final RI Report within forty-five (45) calendar days of the receipt of the EPA's approval of the Amended Draft RI Report.

TASK IV: HUMAN HEALTH AND ECOLOGICAL RISK ASSESSMENT

The Respondents shall perform a Baseline Human Health Risk Assessment, Screening Level Ecological Risk Assessment, and a Baseline Ecological Risk Assessment (if necessary) for the Site, which will be an addendum to the RI Report. The Respondents will prepare one section of the Final RI/FS WP, which discusses the risk assessment process and outlines the steps necessary for coordinating with the EPA at key decision points within the process. Submittal of deliverables, meetings and/or conference calls, and presentations to the EPA will be reflected in the project schedule in the Final RI/FS WP to demonstrate the progress made on the risk assessments. The DQOs listed within the Final RI/FS QAPP will include DQOs specific to risk assessment needs, and critical samples needed for the risk assessments will be so identified within the Final RI/FS SAP. The Respondents shall identify critical assumptions (e.g., background concentrations and conditions) and uncertainties in the Baseline Risk Assessments. These risk assessments shall consist of both Baseline Human Health and Baseline Ecological Risk Assessments as follows:

A. Baseline Human Health Risk Assessment

The Respondents shall perform a Baseline Human Health Risk Assessment (BHHRA), in consultation with EPA, to evaluate and assess the risk to human health posed by the contaminants present at the Site. The Respondents shall refer to the appropriate EPA's guidance documents in conducting the BHHRA. Respondents shall conduct the human health risk assessment in accordance with U.S. EPA guidance including, at a minimum: "Risk Assessment Guidance for Superfund (RAGS), Volume I – Human Health Evaluation Manual (Part A), "Interim Final (EPA-540-1-89-002)," OSWER Directive 9285.7-01A; December 1, 1989; and "Risk Assessment Guidance for Superfund (RAGS), Volume I – Human Health Evaluation Manual (Part D, Standardized Planning, Reporting, and Review of Superfund Risk Assessments)," Interim, (EPA 540-R-97-033), OSWER 9285.7-01D, January, 1998 or subsequently issued guidance.

Respondents shall also conduct the human health risk assessment in accordance with the following additional guidance found in the following ISAPI OSWER directives:

1. "Clarification to the 1994 Revised Interim Soil Lead Guidance for CERCLA Sites and RCRA Corrective Action Facilities," OSWER Directive 9200.4-27; August, 1998,
2. "Implementation of the Risk Assessment Guidance for Superfund (RAGS) Volume I – Human Health Evaluation Manual, (Part D, Standardized Planning, Reporting, and Review of Superfund Risk Assessments) (Interim)," OSWER Directive 9285.7-01D-1; December 17, 1997,
3. "Soil Screening Guidance: Technical Background Document, "OSWER Directive 9355.4-17A; May 1, 1996 and "Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites, OSWER Directive 9355.4; March 24, 2001.
4. "Soil Screening Guidance: User's Guide," Publication 9355.4-23; April, 1996,
5. Revised Interim Soil Lead Guidance for CERCLA Sites and RCRA Corrective Action Facilities," OSWER Directive 9355.4-12; July 14, 1994,
6. "Guidance Manual for the Integrated Exposure Uptake Biokinetics (IEUBK) Model for Lead in Children," Publication 9285.7-15-1; February, 1994, and associated clarifying Short Sheets on IEUBK Model inputs, including but not limited to OSWER 9285.7-32 through 34, as listed on the OSWER lead internet site at www.epa.gov/superfund/programs/lead/prods.htm,
7. "Integrated Exposure Uptake Biokinetic (IEUBK) Model for Lead in Children," Version 0.99D, NTIS PB94-501517, 1994 or "Integrated Exposure Uptake Biokinetic (IEUBK) Model for Lead in Children," Windows version, 2001,
8. "Risk Assessment Guidance for Superfund: Volume I – Human Health Evaluation Manual: (Part B, Development of Risk-based Preliminary Remediation Goals)," Interim OSWER Directive 9285.7-01B; December, 1991,
9. "Human Health Evaluation Manual, Supplemental Guidance: Standard Default Exposure Factors," OSWER Directive 9285.6-03; March 25, 1991, and
10. "Exposure Factors Handbook," Volumes I, II, and III; August 1997 (EPA/600/P-95/002Fa,b, c).

The Respondents shall address the following in the BHHRA:

1. Contaminant Identification (sources) - The Respondents shall review available information on the hazardous substances present at the Site and identify the major contaminants of concern.
2. Dose-Response Assessment - The Respondents, with concurrence from the EPA, shall identify contaminants of concern based on their intrinsic toxicological properties.
3. Conceptual Exposure/Pathway Analysis - The Respondents shall identify and analyze critical exposure pathways (e.g., drinking water). The proximity of contaminants to exposure pathways and their potential to migrate into critical exposure pathways shall be assessed.
4. Characterization of Site and Potential Receptors - The Respondents shall identify and characterize human populations in the exposure pathways.
5. Exposure Assessment - During the exposure assessment, the Respondents shall identify the magnitude of actual or potential human exposures, the frequency and duration of these exposures, and the routes by which receptors are exposed. The exposure assessment shall include an evaluation of the likelihood of such exposures occurring and shall provide the basis for the development of acceptable exposure levels. In developing the exposure assessment, the Respondents shall develop reasonable maximum and central tendency estimates of exposure for both current land use conditions and potential future land use conditions at the Site.
6. Risk Characterization - During risk characterization, the Respondents shall compare chemical-specific toxicity information, combined with quantitative and qualitative information from the exposure assessment, to measured levels of contaminant exposure levels and the levels predicted through environmental fate and transport modeling. These comparisons shall determine whether concentrations of contaminants at or near the Site are affecting or could potentially affect human health.
7. Identification of Limitations/Uncertainties - The Respondents shall identify critical assumptions (e.g., background concentrations and conditions) and uncertainties in the BHHRA.

The Respondents shall prepare and submit to the EPA for review and approval, according to the schedule specified in the Final RI/FS Work Plan, a Draft BHHRA. The Respondents shall submit a final BHHRA as specified in the schedule contained in the Final RI/FS Work Plan.

B. Baseline Ecological Risk Assessment

A baseline ecological risk assessment (BERA) shall be performed that conforms to current EPA guidance. The baseline ecological risk assessment will conform to the general outline provided in "Ecological Risk Assessment Guidance for Superfund: Process for Designing and Conducting Ecological Risk Assessments" (EPA540-R-97-006, June 1997). Respondents may prepare and submit a Screening Level Ecological Risk Assessment prior to the Baseline Ecological Risk Assessment to demonstrate a Baseline Ecological Risk Assessment is not needed, or to limit the number of COCs and/or receptors evaluated in the BERA (Steps 1 and 2 of the 8 steps below). If needed, Respondents will submit a combined Baseline Ecological Problem Formulation/Work Plan and once approved, a Baseline Ecological Sampling & Analysis Plan.

There are eight (8) steps in the Ecological Risk Assessment (ERA) process, which are:

- Step 1 - Screening-Level Problem Formulation and Ecological Effects Evaluation,
- Step 2 - Screening-Level Preliminary Exposure Estimate and Risk Calculation,
- Step 3 - Baseline Risk Assessment Problem Formulation,
- Step 4 - Study Design and Data Quality Objectives,
- Step 5 - Field Verification and Sampling Design,
- Step 6 - Site Investigation and Analysis of Exposure and Effects,
- Step 7 - Risk Characterization, and
- Step 8 - Risk Management.

The Respondents shall perform the BERA in accordance with the appropriate EPA's guidance documents (EPA 1992a, 1997, and 1998a). The Respondents shall interact closely with the EPA's Remedial Project Manager and risk assessment staff assigned to the Site. The scope of the ERA will be determined via a phased approach as outlined in the EPA's guidance documents, summarized in Figure 1, and further detailed in the ERA Work Plan that will be reviewed and approved by the EPA.

TASK V: TREATABILITY STUDIES

Treatability studies shall be performed where necessary to evaluate the feasibility of candidate remedial technologies required to address risks to human health or the environment from contaminants. The results of the treatability testing will be utilized to support the screening and selection of remedial technologies in the Feasibility Study. If applicable, testing results and operating conditions developed from the treatability studies will be used in the detailed design of the selected remedial technology.

A. Identification of Candidate Technologies.

The need for treatability testing to evaluate remedial technologies will be determined on the basis of the following considerations as supported by the DQO process:

1. A preliminary screening of remedial technologies for the source, pathway and/or media of interest based on effectiveness, implementability, value, utility, and cost factors. This effort shall include an evaluation of the existing information in the context of the site-specific application. Respondents will identify, in a technical memorandum to EPA, subject to EPA's review and approval, candidate technologies for a treatability studies program. The listing of candidate technologies will cover the range of technologies required for alternatives analysis. Respondents will conduct a literature survey that focuses on existing sediment treatment methods to gather information on performance, relative costs, applicability, removal efficiencies, operation and maintenance requirements and implementability of candidate technologies. These technologies will be screened and appropriate technologies identified for additional evaluation.
2. For technologies which remain after the preliminary screening, treatability testing shall be conducted where necessary to: 1) support an accelerated response objective as agreed to by Respondents and EPA, or 2) address a data gap critical to the Feasibility Study which cannot be satisfied on the basis of existing information.

Where it is determined that treatability testing is required, the Respondents shall submit a work plan to EPA outlining the steps and data necessary to evaluate and initiate the treatability testing program. Once a decision to perform treatability testing has been made, the Respondents and EPA will decide on the type of testing to be conducted (e.g. bench versus pilot).

B. Implementation of Treatability Studies

Where treatability studies are conducted, the deliverables shall include a work plan, a sampling and analysis plan, and a final treatability evaluation report. EPA may also require a treatability study health and safety plan, where appropriate.

1. Treatability Study Work Plan

The Respondents shall prepare a treatability study work plan or amendment to the original site work plan for EPA review and approval describing the site, remedial technology (ies) to be tested, test objectives, experimental procedures, treatability conditions to be tested, measurements of performance, analytical methods, data management and analysis, health and safety, residual waste management and schedule (e.g., testing, deliverables, etc.). The data quality objectives (DQOs) for the treatability study should be documented as well. If a pilot scale treatability study is to be performed, the pilot-scale work plan will describe pilot plant installation and start-up, pilot plant operation and maintenance procedures, operating conditions to be tested, a sampling plan to determine pilot plant performance, and a detailed health and safety plan. If the study is to be performed off-site, permitting requirements will be addressed.

2. Treatability Study Sampling and Analysis Plan

If the original Sampling and Analysis Plan is not adequate for defining the activities to be performed during the treatability studies, a separate treatability study Sampling and Analysis Plan or amendment to the original site Sampling and Analysis Plan will be prepared by the Respondents for EPA review and approval.

3. Treatability Study Healths and Safety Plan

A health and safety plan shall be developed by the Respondents for treatability studies. The treatability study health and safety plan will include the components listed in Task II.D, and will specifically address air monitoring for possible exposures to workers and the community. EPA does not "approve" the treatability study health and safety plan.

4. Treatability Study

Following completion of treatability studies, the Respondent shall analyze and interpret the results in a technical report to EPA. Depending on the sequence of activities, this report may be a part of the RI/FS report or a separate deliverable. The report shall evaluate each technology's effectiveness, implementability, cost and actual results as compared with predicted results. The report will also evaluate full-scale application of the technology, including a sensitivity analysis identifying the key parameters affecting full-scale operation.

FEASIBILITY STUDY

The purpose of the Feasibility Study (FS) is to develop and evaluate the remedial alternatives and to recommend the remedial actions necessary to be taken to adequately protect human health and the environment, based on risk evaluation, from contamination. The Respondents will furnish the personnel, materials, and services necessary to prepare the Feasibility Study, except as otherwise specified.

The Feasibility Study consists of two tasks:

Task VI: Development and Screening of Remedial Alternatives.

Task VII: Detailed Analysis of Remedial Alternatives - This task includes preparation of the Feasibility Study report.

TASK VI: DEVELOPMENT AND SCREENING OF REMEDIAL ALTERNATIVES

The Respondents will develop and evaluate a range of appropriate alternatives to remediate or control contaminated media (soil, surface water, air, biota, groundwater, sediments) as deemed necessary in the RI, to provide adequate protection of human health and the environment. The development and screening of remedial alternatives is performed to develop an appropriate range of contaminated media options that will be evaluated. This range of alternatives should include options in which treatment is used to reduce the toxicity, mobility, or volume of hazardous substances, but varying in the types of treatment, the amount treated, and the manner in which long-term residuals or untreated wastes are managed; options involving containment with little or no treatment; options involving both treatment and containment; and a no-action alternative. The following activities will be performed by the Respondents as a function of the development and screening of remedial alternatives.

A. Remedial Action Objectives

Based on the baseline risk assessment, the Respondents will develop the site-specific remedial action objectives to provide adequate protection of human health and the environment. These remedial action objectives will specify the contaminants and media of interest, exposure pathways and receptors, and an acceptable contaminant level or range of levels (at particular locations for each selected exposure pathway).

B. Response Actions

The Respondents will develop general response actions for each medium of interest defining containment, treatment, excavation, pumping, or other actions, singly or in combination, to satisfy the remedial action objectives. The Respondents will identify areas or volumes of media to which general response actions may apply, taking into account requirements for level of protection as identified in the remedial action objectives and the chemical and physical characterization of the Site.

C. Remedial Technologies

The Respondents will identify and evaluate technologies applicable to each general response action to eliminate those that cannot be implemented at the site. General response actions will be refined to specify remedial technology types. Technology process options for each of the technology types will be identified either concurrent with the identification of technology types, or following the screening of the considered technology types. Process options will be evaluated on the basis of effectiveness, implementability, and cost factors to select and retain representative processes for each applicable technology type.

D. ARAR Analysis

The Respondents shall identify all contaminant or location specific applicable or relevant and appropriate standards (ARARs), requirements, criteria, or limitations for the protection of human health or the environment (e.g. National Ambient Air Quality Standards, Texas Air Toxics Guidelines, groundwater protection standards, State water quality standards, Texas Risk Reduction Standards, Ambient Water Quality Criteria, Executive Order 11990, etc.). ARAR analysis shall be consistent with EPA guidance (EPA, 1989e).

E. Remedial Alternatives

The Respondents will assemble selected representative technologies into alternatives for each affected medium or area. Together, all of the alternatives will represent a range of treatment and containment combinations that will address the site as a whole for contamination. A summary of the assembled alternatives and their related action-specific ARARs will be prepared by the Respondents for inclusion in a technical memorandum. The reasons for eliminating alternatives during the preliminary screening process must be specified.

The Respondents will refine the remedial alternatives to identify contaminant volume addressed by the proposed process and sizing of critical unit operations as necessary. Sufficient information will be collected for an adequate comparison of alternatives.

The Respondents may perform a final screening process based on short and long term aspects of effectiveness, implementability, and relative cost. Generally, this screening process is only necessary when there are many feasible alternatives available for detailed analysis. If necessary, the screening of alternatives will be conducted to assure that only the alternatives with the most favorable composite evaluation of all factors are retained for further analysis. As appropriate, the screening will preserve the range of treatment and containment alternatives that was initially developed. The range of remaining alternatives will include options that use treatment technologies and permanent solutions to the maximum extent practicable.

TASK VII: DETAILED ANALYSIS OF REMEDIAL ALTERNATIVES

The detailed analysis will be conducted by the Respondents to provide EPA with the information needed to allow for the selection of a remedy, which addresses the contamination for the site. The Respondents will conduct a detailed analysis of alternatives which will consist of an analysis of each option against a set of nine evaluation criteria and a comparative analysis of all options using the same evaluation criteria as a basis for comparison. This analysis is the final task to be performed by the Respondents during the FS.

Respondents must submit a Feasibility Study (FS) Report to EPA for review and approval.

In the FS report, Respondents will include the information as described in Table 6-5 of the RI/FS Guidance. Respondents' FS Report must include text covering all the topics listed in Table 6-5. Respondents must conduct a detailed analysis of the alternative(s) that were identified and submit the analysis for EPA review and approval in the Feasibility Study Report. This analysis must assess each of the individual alternatives against the seven evaluation criteria described at 40 C.F.R. §§ 300.430(e)(9)(iii)(A) through (G), and focus on the relative performance of each alternative against each of the seven criteria. Respondents must ensure that the analysis reflects the scope and complexity of Site problems and alternatives being evaluated, and that the analysis considers the relative significance of the factors within each of the criteria at 40 C.F.R. §§ 300.430(e)(9)(iii)(A) through (G). In the analysis, Respondents must identify pertinent advisories, criteria, or guidance documents.

A. Detailed Analysis of Alternatives

The Respondents will apply the evaluation criteria to the assembled remedial alternatives to ensure that the selected remedial alternative will be protective of human health and the environment; will be in compliance with, or include a waiver of, ARARs; will be cost-effective; will utilize permanent solutions and alternative treatment technologies, or resource recovery technologies, to the maximum extent practicable; and will address the statutory preference for treatment as a principal element. The evaluation criteria include:

1. Overall protection of human health and the environment;
2. Compliance with ARARs;
3. Long-term effectiveness and permanence;
4. Reduction of toxicity, mobility, or volume;
5. Short-term effectiveness;
6. Implementability;
7. Cost;
8. State acceptance; and
9. Community acceptance.

For each alternative the Respondents should provide: (1) a technical description of the alternative that outlines the contaminated media management strategy involved and identifies the key ARARs associated with each alternative; and (2) a discussion that profiles the performance of that alternative with respect to each of the evaluation criteria. If the Respondents do not have direct input on criteria (8) State acceptance and (9) community acceptance, these will be addressed by EPA.

The detailed analysis of alternatives shall have an alternatives analysis for institutional controls and screening which shall (1) state the objectives (i.e., what will be accomplished) for any institutional controls; (2) determine the specific types of institutional controls that can be used to meet the remedial objectives; (3) investigate when the institutional controls need to be implemented and/or secured and how long they must be in place; (4) research, discuss and document any agreement with the proper entities (e.g., state, local government entities, local

landowners, conservation organizations, Respondents) on exactly who will be responsible for securing, maintaining and enforcing the institutional controls. The alternatives analysis for institutional controls and screening shall also evaluate any institutional controls identified against the nine evaluation criteria outlined in the NCP (40 C.F.R. 300.430(e)(9)(iii)) for CERCLA cleanups, including but not limited to costs to implement, monitor and/or enforce the institutional controls. The alternatives analysis for institutional controls and screening shall be submitted as an appendix to the Draft Feasibility Study Report.

B. Comparative Analysis

The Respondents will perform a comparative analysis between the remedial alternatives. That is, each alternative will be compared against the others using the evaluation criteria as a basis of comparison. Identification and selection of the preferred alternative are reserved by EPA. A table summarizing the results of this analysis should be prepared. Once the individual analysis is complete, the alternatives will be compared and contrasted to one another with respect to each of the evaluation criteria.

landowners, conservation organizations, Respondents) on exactly who will be responsible for securing, maintaining and enforcing the institutional controls. The alternatives analysis for institutional controls and screening shall also evaluate any institutional controls identified against the nine evaluation criteria outlined in the NCP (40 C.F.R. 300.430(e)(9)(iii)) for CERCLA cleanups, including but not limited to costs to implement, monitor and/or enforce the institutional controls. The alternatives analysis for institutional controls and screening shall be submitted as an appendix to the Draft Feasibility Study Report.

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LIST OF DELIVERABLES AND SCHEDULE

DELIVERABLES/MEETINGS	SCHEDULE
<p>1. Preliminary Site Characterization (Conceptual Scoping Document) Report</p> <p>Includes:</p> <ul style="list-style-type: none"> • Evaluation of Existing Information • Preliminary Conceptual Site Model • Identification of Potential Technologies • Identification of RI/FS Data Needs • Preliminary List of ARARS and TBCs • Preliminary RAOs • Project Database 	Report is due 90 days following EPA approval of AOC and SOW.
<p>2. RI/FS Work Plan</p> <p>Includes:</p> <ul style="list-style-type: none"> • Project Management Plan • Data Management Plan • Sampling and Analysis Plan (Contains Field Sampling Plan and Quality Assurance/Quality Control Plan) • Health and Safety Plan • Community Relations Plan 	RI/FS Work Plan due 150 days after submittal of the Preliminary Site Characterization Report. The final report is due within 60 days after receipt of EPA comments on the draft. The Work Plan will include a final PSCR.
3. Remedial Investigation	As specified in the Final RI/FS Work Plan
4. Baseline Human Health Risk Assessment	Due as specified in the Final RI/FS Work Plan.
5. Screening Level Ecological Risk Assessment Report	Due as specified in the Final RI/FS Work Plan.
6. Baseline Ecological Risk Assessment Problem Formulation Report	Due as specified in the Final RI/FS Work Plan.
7. Baseline Ecological Risk Assessment Work Plan and Sampling and Analysis Plan	Due as specified in the Final RI/FS Work Plan. T
8. Baseline Ecological Risk Assessment Report	Due as specified in the Final RI/FS Work Plan.
9. Analytical Data Summary	Analytical data summaries will be prepared and submitted for any additional data not included in the standard reports or not included in Monthly Progress Reports as directed by the EPA RPM. Due as specified in the Final RI/FS Work Plan.

10. Remedial Investigation Report	Due as specified in the Final RI/FS Work Plan. The final report is due within 45 days after receipt of EPA comments.
11. Draft and Final Feasibility Study Report	Due as specified in the Final RI/FS Work Plan. The final report is due within 45 days after receipt of EPA comments.
12. Monthly Progress Reports	Initially due as specified in the RI/FS Work Plan. Thereafter, due by the tenth day of the following month

REFERENCES

The following list, although not comprehensive, contains many of the regulations and guidance documents that apply to the RI/FS process:

1. National Oil and Hazardous Substances Pollution Contingency Plan, 40 C.F.R. Part 300.
2. "Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA," U.S. EPA, Office of Emergency and Remedial Response, October 1988, OSWER Directive No. 9355.3-01.
3. "Interim Guidance on Potentially Responsible Party Participation in Remedial Investigation and Feasibility Studies," U.S. EPA, Office of Waste Programs Enforcement, Appendix A to OSWER Directive No. 9355.3-01.
4. "Guidance on Oversight of Potentially Responsible Party Remedial Investigations and Feasibility Studies," U.S. EPA, Office of Waste Programs Enforcement, OSWER Directive No. 9835.3.
5. "Guide to Preparing Superfund Proposed Plans, Records of Decision, and Other Remedy Selection Decision Documents," U.S. EPA, Office of Solid Waste and Emergency Response, EPA 540-R-98-031, July 1999, OSWER Directive No. 9200.1-23P.
6. "A Compendium of Superfund Field Operations Methods," Two Volumes, U.S. EPA, Office of Emergency and Remedial Response, EPA/540/P-87/001a, August 1987, OSWER Directive No. 9355.0-14.
7. "EPA NEIC Policies and Procedures Manual," May 1978, revised November 1984, EPA-330/9-78-001-R.
8. "Interim Guidance on Compliance with Applicable or Relevant and Appropriate Requirements," U.S. EPA, Office of Emergency and Remedial Response, July 9, 1987, OSWER Directive No. 9234.0-05
9. "CERCLA Compliance with Other Laws Manual," Two Volumes, U.S. EPA, Office of Emergency and Remedial Response, August 1988 (draft), OSWER Directive No. 9234.1-01 and -02.
10. "Guidance on Remedial Actions for Contaminated Ground Water at Superfund Sites," U.S. EPA, Office of Emergency and Remedial Response, (draft), OSWER Directive No. 9283.1-2.
11. "Draft Guidance on Preparing Superfund Decision Documents," U.S. EPA, Office of Emergency and Remedial Response, March 1988, OSWER Directive No. 9355.3-02

12. "Performance of Risk Assessments in Remedial Investigation/Feasibility Studies (RI/FSs) Conducted by Potentially Responsible Parties (PRPs)," August 28, 1990, OSWER Directive No. 9835.15.
13. "Role of the Baseline Risk Assessment in Superfund Remedy Selection Decisions," April 22, 1991, OSWER Directive No. 9355.0-30.
14. OSHA Regulations at 29 C.F.R. 1910.120
15. "Final Guidance on Administrative Records for Selecting CERCLA Response Actions," U.S. EPA, Office of Waste Programs Enforcement, December 3, 1990, OSWER Directive No. 9833.3A.
16. "Community Relations in Superfund: A Handbook," U.S. EPA, Office of Emergency and Remedial Response, June 1988, OSWER Directive No. 9230.0#3B.
17. "Community Relations During Enforcement Activities And Development of the Administrative Record," U.S. EPA, Office of Programs Enforcement, November 1988, OSWER Directive No. 9836.0-1A.
18. EPA 1997. "Ecological Risk Assessment Guidance for Superfund, Process for Designing and Conducting Ecological Risk Assessments." Office of Emergency and Remedial Response. EPA/540-R-97-006. June 5, 1997.
19. U.S. Environmental Protection Agency (EPA) 1987a. "Data Quality Objectives for Remedial Response Activities." Office of Emergency and Remedial Response and Office of Waste Programs Enforcement. EPA/540/G-87/003. OSWER Directive No. 9335.0-7b. March 1987.
20. EPA 1991a. "Human Health Evaluation Manual, Supplemental Guidance: Standard Default Exposure Factors." Office of Emergency and Remedial Response. OSWER Directive No. 9235.6-03. March 1991.
21. "Risk Assessment Guidance for Superfund - Volume I Human Health Evaluation Manual (Part A)," December 1989, EPA/540/1-89/002.
22. EPA 1991b. "Risk Assessment Guidance for Superfund: Volume I, Human Health Evaluation Manual (Part B), Development of Risk-Based Preliminary Remediating Goals." Office of Emergency and Remedial Response. OSWER Directive No. 9285.7-01B. December 1991.
23. EPA 1991c. "Risk Assessment Guidance for Superfund: Volume I, Human Health Evaluation Manual (Part C), Risk Evaluation of Remedial Alternatives." Office of Emergency and Remedial Response. OSWER Directive No. 9285.7-01C. 1991.

24. EPA 1992a. "Guidance for Data Useability in Risk Assessment." Office of Emergency and Remedial Response. OSWER Directive No. 9285.7-09A. April 1992 (and Memorandum from Henry L. Longest dated June 2, 1992).
25. "Risk Assessment Guidance for Superfund. Volume I: Human Health Evaluation Manual. Supplemental Guidance. Dermal Risk Assessment." Interim Guidance, 1998.
26. "Risk Assessment Guidance for Superfund - Volume II Environmental Evaluation Manual," March 1989, EPA/540/1-89/001.
27. EPA 1992b. "Supplemental Guidance to RAGS: Calculating the Concentration Term." Office of Emergency and Remedial Response. OSWER Directive No. 9285.7-081. May 1992.
28. EPA 1993a. "Data Quality Objectives Process for Superfund." Office of Solid Waste and Emergency Response. EPA/540-R-93-071. September 1993.
29. EPA 1998a. "Risk Assessment Guidance for Superfund, Volume 1 - Human Health Evaluation Manual (Part D, Standardized Planning, Reporting, and Review of Superfund Risk Assessments). Interim. Process for Designing and Conducting Ecological Risk Assessments." Office of Solid Waste and Emergency Response. EPA/540-R-97-033. January 1998.
30. EPA 1998b. "EPA Guidance for Quality Assurance Project Plans." Office of Research and Development. EPA QA/G-5. EPA/600/R-98/018. February 1998.
31. EPA 2001. "EPA Requirements for Quality Assurance Project Plans." Office of Environmental Information. EPA QA/R-5. EPA/240/B-01/003. March 2001.
32. "Health and Safety Requirements of Employees Employed in Field Activities," U.S. EPA, Office of Emergency Response, July 12, 1981, EPA Order No. 1440.2.
33. "Exposure Factors Handbook", EPA, 1997.
34. Integrated Risk Information System (IRIS), 2000.
35. "Health Effects Assessment Summary Tables (HEAST), "U.S. EPA, Office of Solid Waste and Emergency Response, 1997, EPA/540/R-95/036.

Figure 1. Flow Chart for Ecological Risk Assessment Process at Patrick Bayou

